

Thursday, March 1, 2012

11:30-13:00

Hall A

**SATELLITE SYMPOSIUM
NEW ORAL ANTICOAGULANTS IN REAL PRACTICE
SPONSORED BY BOEHRINGER INGELHEIM**

Chairpersons: P. Amarenco, *France*
N. Bornstein, *Israel*

- 11:30 **EVIDENCE-BASED USE OF NEW ORAL ANTICOAGULANTS AND BEYOND ONE-YEAR EXPERIENCE IN CANADA**
S.J. Connolly, *Canada*
- 11:50 **NEW ORAL ANTICOAGULANTS IN REAL PRACTICE**
P. Mismetti, *France*
- 12:10 **NEW ORAL ANTICOAGULANTS IN CARDIOLOGY PRACTICE: PATIENT CASES**
J.Y. Le Heuzey, *France*
- 12:30 **NEW ORAL ANTICOAGULANTS IN NEUROLOGY PRACTICE: PATIENT CASES**
J.L. Mas, *France*
- 12:50 **DISCUSSION**

13:00-14:30

Hall A

**PLENARY I: STROKE AND THE HEART:
ATRIAL FIBRILLATION: PREVENTION OF STROKE AND SYSTEMIC EMBOLISM
SUPPORTED BY AN UNRESTRICTED EDUCATIONAL GRANT FROM
DAIICHI SANKYO EUROPE GMBH**

Chairpersons: B. Belhassen, *Israel*
L.R. Caplan, *USA*

- 13:00 **EPIDEMIOLOGY AND CO-MORBIDITIES OF AF**
E. Hylek, *USA*
- 13:20 **RISK STRATIFICATION IN PATIENTS WITH AF**
J. Oldgren, *Sweden*
- 13:40 **NEW ORAL ANTICOAGULANTS VS. VITAMIN K ANTAGONIST**
S.J. Connolly, *Canada*
- 14:00 **UPDATE ON THE NEWLY RELEASED ACCP GUIDELINES FOR ANTITHROMBOTIC THERAPY IN AF**
D. Singer, *USA*
- 14:20 **DISCUSSION**
- 14:30 *Coffee Break, Exhibition and Poster Viewing*

Thursday, March 1, 2012

15:00-16:30

Hall A

PLENARY II: STROKE AND THE HEART: ATRIAL FIBRILLATION: PREVENTION OF STROKE AND SYSTEMIC EMBOLISM CONTINUED

Chairpersons: E. Hylek, *USA*
J.L. Mas, *France*

- 15:00 **ANTITHROMBOTIC TREATMENT IN PATIENTS NOT ELIGIBLE FOR OAC**
D. Singer, *USA*
- 15:20 **ANTIARRHYTHMIC DRUGS AND DEVICES MANAGEMENT, RHYTHM VERSUS
RATE CONTROL**
J.Y. Le Heuzey, *France*
- 15:40 **INDICATIONS AND RESULTS OF AF ABLATION**
B. Belhassen, *Israel*
- 16:00 **ROLE OF LAA OCCLUDER DEVICES**
H. Sievert, *Germany*
- 16:20 **DISCUSSION**
- 16:30 *Coffee Break, Exhibition and Poster Viewing*

Thursday, March 1, 2012

17:00-18:30

Hall A

**SATELLITE SYMPOSIUM
STROKE PREVENTION IN ATRIAL FIBRILLATION:
ADVANCES IN ORAL ANTICOAGULATION
SPONSORED BY BAYER HEALTHCARE**

Chairpersons: **N. Bornstein, *Israel***
 J.Y. Le Heuzey, *France*

- 17:00 THE BURDEN OF ATRIAL FIBRILLATION-RELATED STROKE:
RISK STRATIFICATION, IMPACT ON PRACTICE AND HEALTHCARE SYSTEMS**
D. Leys, *France*
- 17:25 STROKE PREVENTION IN ATRIAL FIBRILLATION: NEW APPROACHES**
K. Fox, *UK*
- 17:55 SECONDARY PREVENTION OF STROKE IN ATRIAL FIBRILLATION**
P. Amarenco, *France*
- 18:20 PANEL DISCUSSION: PRACTICAL IMPLICATIONS**
N. Bornstein, *Israel*
J.Y. Le Heuzey, *France*

19:00

Hall A

OPENING CEREMONY FOLLOWED BY WELCOME RECEPTION

Friday, March 2, 2012

08:30-10:00

Hall A

PLENARY III: STROKE AND THE HEART: CARDIAC ISCHEMIA AND STROKE

Chairpersons: S. Uchiyama, *Japan*
L. Fauchier, *France*

08:30 PREVALENCE OF CAD IN STROKE PATIENTS

P. Amarenco, *France*

08:50 DETECTION: CORONARO-ANGIOGRAPHY VS. CORO-CT VS. MYOCARDIAL SCINTIGRAPHY

A. Saraste, *Finland*

09:10 PREDICTING CAD IN STROKE PATIENTS (IMT, CAROTID PLAQUES, CAC)

N. Bornstein, *Israel*

09:30 IHD AS A SOURCE OF EMBOLISM (LV THROMBUS, LV ANEURYSM): MANAGEMENT

V. Roger, *USA*

09:50 DISCUSSION

10:00 *Coffee Break, Exhibition and Poster Viewing*

10:30-12:00

Hall A

PLENARY IV: STROKE OF UNKNOWN CAUSE AND THE HEART

Chairpersons: J.Y. Le Heuzey, *France*
M. Mijajlovic, *Serbia*

10:30 DEFINITION AND PREVALENCE OF A STROKE OF UNKNOWN CAUSE: HOW FAR TO EXPLORE AFTER A STROKE OR TIA WITH NO OBVIOUS CAUSE (CAUSE YIELD OF TTE/TEE IN STROKE WITH NO OBVIOUS CAUSE, YIELD OF CT/MRI - BRAIN AND SUBDIAPHRAGMATIC)

R.L. Sacco, *USA*

10:48 YIELD OF NEW DEVICES TO DETECT AN ARRHYTHMIA (HOLTER MONITORING, TRANSTELEPHONIC ECG, IMPLANTABLE DEVICES)

R. Rosso, *Israel*

11:06 SEPTAL ABNORMALITIES: HOW TO DETECT THEM, PFO AND STROKE RISK

G. Derumeaux, *France*

11:24 SEPTAL ABNORMALITIES: TO CLOSE, NO

J.L. Mas, *France*

11:42 SEPTAL ABNORMALITIES: TO CLOSE, YES

H. Mattle, *Switzerland*

Friday, March 2, 2012

12:00-12:30

Hall A

KEYNOTE LECTURES

Chairpersons: P. Amarenco, *France*
N. Bornstein, *Israel*

12:00 **ANTITHROMBOTIC THERAPY FOR THE HEART AND THE BRAIN: SIMILAR AND DIFFERENT**

P.G. Steg, *France*

12:30 **IT IS THE MATTER THAT MATTERS**

L.R. Caplan, *USA*

13:00 *Lunch Break, Exhibition and Poster Viewing*

13:00-14:00

Hall A

SATELLITE SYMPOSIUM

**STROKE PREVENTION IN ATRIAL FIBRILLATION:
GUIDELINES, PATIENTS AND DEBATES
SPONSORED BY BRISTOL MYERS-SQUIBB/PFIZER**

Chairperson: P. Amarenco, *France*

13:00 **ESC GUIDELINES IN EVERYDAY CLINICAL PRACTICE?**

L. Hvilsted Rasmussen, *Denmark*

13:15 **WHICH PATIENTS SHOULD BE TREATED WITH VITAMIN K ANTAGONISTS?**

J.P. Collet, *France*

13:30 **THE ASPIRIN DEBATE: CARDIOLOGIST AND NEUROLOGIST PERSPECTIVES**

D. Leys, *France*

13:45 **PANEL DISCUSSION**

P. Amarenco, *France*

L. Hvilsted Rasmussen, *Denmark*

J.P. Collet, *France*

D. Leys, *France*

Friday, March 2, 2012

14:00-15:30

Hall A

PLENARY V: THE CARDIAC PATIENT AT RISK FOR STROKE: ACS/CAD

Chairpersons: D. Muresanu, *Romania*
J.P. Collet, *France*

- 14:00 **THE OVERLAP BETWEEN CARDIAC AND CEREBROVASCULAR DISEASE: LESSONS FROM THE REACH REGISTRY**
P.G. Steg, *France*
- 14:18 **PREVALENCE OF MICROEMBOLISM AND MACROEMBOLISM IN ACS PATIENTS**
C.A. Molina, *Spain*
- 14:36 **CABG AND THE RISK OF STROKE OR BRAIN DETERIORATION, AND HOW TO HANDLE POST-CABG STROKE**
R. Leker, *Israel*
- 14:54 **CABG AND CEREBRAL ARTERIAL STENOSIS: TO FIX OR NOT TO FIX**
C. Sila, *USA*
- 15:12 **ACS, PCI AND THE RISK OF STROKE**
A. Budaj, *Poland*
- 15:30 *Coffee Break, Exhibition and Poster Viewing*

16:00-17:30

Hall A

PLENARY VI: VASCULAR NEUROLOGY FOR THE CARDIOLOGIST: HANDLING THE ACUTE PHASE OF STROKE

Chairpersons: P.G. Steg, *France*
C. Sila, *USA*

- 16:00 **UPDATE ON IV-THROMBOLYSIS IN PATIENTS WITH AN ACUTE STROKE**
N. Wahlgren, *Sweden*
- 16:18 **UPDATE ON EMERGENT ENDOVASCULAR THERAPY IN PATIENTS WITH ACUTE STROKE**
M. Mazighi, *France*
- 16:36 **WHY VASCULAR NEUROLOGISTS DO NOT LIKE HEPARIN AT THE ACUTE PHASE OF STROKE**
P. Sandercock, *UK*
- 16:54 **HOW TO HANDLE TROPONIN AND ECG CHANGES AFTER A STROKE**
C. Nolte, J. Scheitz, M. Endres, *Germany*
- 17:12 **WHY THE MANAGEMENT OF AN ACUTE STROKE IS COMPLICATED ENOUGH TO MAKE STROKE UNITS MANDATORY**
P. Langhorne, *UK*

Friday, March 2, 2012

17:45-19:15

Hall A

**SCIENTIFIC COLLABORATION EDUCATIONAL SESSION
ORGANIZED BY THE SOCIETY FOR THE STUDY OF NEUROPROTECTION AND
NEUROPLASTICITY (SSNN)**

Chairpersons: **D. Muresanu, *Romania***
 N. Bornstein, *Israel*

17:45 THE VASCULAR CONTRIBUTION IN NEUROCOGNITIVE DISORDERS
 D. Muresanu, *Romania*

18:15 STATINS AND STROKE PREVENTION
 P. Amarenco, *France*

18:45 COMBINED EFFECT OF HYPERTENSION AND HYPERLIPIDEMIA
 L. Csiba, *Hungary*

Saturday, March 3, 2012

08:30-10:00

Hall A

PLENARY VII: VASCULAR NEUROLOGY FOR THE CARDIOLOGIST: DIAGNOSIS AND PREVENTION

Chairpersons: D. Toni, *Italy*
TBA

08:30 **HOW TO DIAGNOSE A BRAIN ISCHEMIA (CLINIC, BIOMARKERS, CT/MRI)**
B. Norrving, *Sweden*

08:45 **UPDATE ON THE MANAGEMENT OF TIAS**
F. Purroy Garcia, *Spain*

09:00 **UPDATE ON THE MANAGEMENT OF CAROTID STENOSIS (CEA VS. STENTING)**
M.M. Brown, *UK*

09:15 **HOW TO MANAGE HEMORRHAGIC STROKES (INCLUDING IATROGENIC)**
T. Steiner, *Germany*

09:30 **WHAT ARE CAROTID OR VERTEBRAL ARTERY DISSECTIONS AND THEIR
MANAGEMENTS?**
D. Leys, *France*

09:45 **HOW DIFFERENT IS THE DIAGNOSIS, PROGNOSIS, EVOLUTION AND
MANAGEMENT OF A "LACUNAR STROKE" (CEREBRAL SMALL VESSEL
DISEASE)**
B. Norrving, *Sweden*

10:00 *Coffee Break, Exhibition and Poster Viewing*

Saturday, March 3, 2012

10:30-12:00

Hall A

PLENARY VIII: BETWEEN THE HEART AND THE BRAIN

Chairpersons: L. Csiba, *Hungary*
S. Kownator, *France*

10:30 **AORTIC ARCH: HOW TO DETECT IT (TEE, CT/MRI), PREVALENCE, RISK AND MANAGEMENT**
A. Cohen, *France*

11:00 **THE USE OF ULTRASOUND TO DETECT COEXISTING EXTRA- AND INTRACRANIAL ATHEROSCLEROTIC LESIONS**
M. Hennerici, *Germany*

11:30 **AORTIC DISSECTION: STROKE IN THE CONTEXT OF AORTIC DISSECTION, DIAGNOSTIC AND THERAPEUTIC MANAGEMENT**
C. Nienaber, *Germany*

12:00-12:30

Hall A

CLOSING SESSION

ANTITHROMBOTIC TREATMENT IN PATIENTS NOT ELIGIBLE FOR OAC

D. Singer

Medicine, Massachusetts General Hospital/Harvard Medical School, Boston, MA, USA

In the current era, where warfarin is still the dominant therapy, nearly half of patients with atrial fibrillation at moderate to high risk of stroke do not take anticoagulants. Many of these patients are felt to be ineligible for anticoagulation. We will explore the reasons for ineligibility, using, in particular, the results of the AVERROES trial, and assess whether novel anticoagulants might be appropriate. Using recent decision analyses, we will consider when elevated risk of bleeding is a firm contraindication. Finally, we will review the role of the combination of clopidogrel plus aspirin as an alternative antithrombotic treatment. For these last considerations, we will be guided by recent analyses of the Net Clinical Benefit of antithrombotic therapy for patients with atrial fibrillation. The discussion will naturally lead into consideration of mechanical approaches to stroke prevention in atrial fibrillation, the subject of a subsequent presentation in this symposium.

ANTIARRHYTHMIC DRUGS AND DEVICES MANAGEMENT, RHYTHM VERSUS RATE CONTROL

J.Y. Le Heuzey

Cardiologie et Rythmologie, Hôpital Européen Georges Pompidou, Université René Descartes, Paris, France

Atrial fibrillation is associated to a decrease in life expectancy. The main complication remains stroke. Anticoagulation therapy is efficient for preventing stroke and in some cases to decrease mortality. The management of rhythm by itself is much more difficult.

Antiarrhythmic drugs are able to maintain sinus rhythm but some of these drugs have deleterious effects and these effects can offset the beneficial aspects. Indeed, class I antiarrhythmic drugs must be avoided in patients with coronary artery disease and congestive heart failure. Drugs like amiodarone are efficient in terms of sinus rhythm maintenance but its extracardiac toxicity implies that in many cases the drug must be withdrawn. Some years ago a large trial comparing the 2 strategies : rhythm control, i.e. cardioversion then maintenance with antiarrhythmic drugs and rate control, i.e. simple slowing of the heart rate, has been performed. This trial (AFFIRM) has shown no superiority of one strategy over the other one. In practice, rhythm control is the better choice for younger patients, highly symptomatic and with few factors of relapse. On the contrary if patients are older with few symptoms and severe underlying heart disease, rate control is the better choice. Nevertheless, in a majority of cases the choice remains difficult and must be done according to each peculiar case.

Non pharmacological therapies have been proposed. Automatic defibrillator and stimulator have failed. Today, ablation is considered as a major advance. The technique proposed is an isolation of pulmonary veins, in order to avoid that the foci present in the pulmonary veins could be responsible for a desynchronisation. The best results are obtained in young patients with paroxysmal atrial fibrillation. In some severe cases, after a failure of the other techniques, it is possible to propose an ablation of the atrio-ventricular node with implantation of a stimulator.

WHY VASCULAR NEUROLOGISTS DO NOT LIKE HEPARIN AT THE ACUTE PHASE OF STROKE

P. Sandercock

Clinical Neurosciences, University of Edinburgh, Edinburgh, UK

The key difference in the response to antithrombotic treatment between acutely ischaemic heart and brain is the risk of fatal/disabling cerebral bleeding. In patients with acute coronary ischaemia very intensive antithrombotic regimens with dual antiplatelet therapy and different anticoagulants are used routinely with relative impunity and generally lead to significant net clinical benefit. Occlusion of a major cerebral vessel damages not just the brain tissue, but both the vascular tree and the blood-brain barrier, leading to increased vascular permeability to red cells. The 'leaky' blood vessels are an important factor in haemorrhagic transformation of a bland cerebral infarct. Cerebral amyloid angiopathy, 'brain microbleeds', and white matter change due to other small vessel disease are all associated with cerebral bleeding. Large-scale randomised trials have shown that, in patients with acute ischaemic stroke, whichever agent is used - unfractionated heparin, low molecular weight heparin, heparinoid - any reduction in thrombo-embolic events in the arterial and venous systems is offset by a similar sized increase in intra- and extra-cranial bleeding. Dose selection is ineffective; the higher the dose, or the more effective the antithrombotic agent, the greater the risk of bleeding, thus negating any higher degree of protection against occlusive events. Risk prediction models have not been helpful either. So, to date, it has not been possible to identify an anticoagulant regimen that leads to clear net benefit in patients with acute ischaemic stroke and aspirin remains the antithrombotic agent of choice for the acute phase of ischaemic stroke.

HOW TO HANDLE TROPONIN AND ECG CHANGES AFTER A STROKE

C. Nolte, J. Scheitz, **M. Endres**

Neurology, Charite, Berlin, Germany

ECG changes and raised troponin levels are detected in 5 to 35% of patients with acute ischemic stroke and are associated with poor outcome.

The occurrence of ECG changes and raised troponin may lead to the assumption of coexistence of coronary and cerebrovascular disease in the same patient. However, ECG and Troponin changes do not necessarily indicate myocardial infarction but may also occur due to non-local cardiac dysfunction such as Tako-Tsubo syndrome or stress cardiomyopathy induced by neuro-cardiogenic mechanisms. This hypothesis is stressed by observations of ECG changes and troponin elevations in young patients suffering from subarachnoidal hemorrhage (SAH) in the absence of coronary disease. Troponin elevation in SAH patients is associated with complications and delayed ischemic deficits.

The key to understanding stroke induced cardiac damage may be to look at its neuro-anatomic correlates. Damage to the insular lobe of the brain seems especially likely to cause cardiac autonomic derangement and adverse cardiac outcome. However, data on whether left or right insular involvement is of greater importance are contradictory. The left insular lobe is involved in the sympathetic autonomic nerve system and induces hypertension, tachycardia and arrhythmias. The right insular lobe will cause hypotension, bradycardia and asystoly via parasympathetic activation. Independent of the mediating mechanism, troponin elevation (in the absence of renal insufficiency) means myocardial injury. In a patient with stroke and ECG changes and/or troponin elevation cardiological diagnostic work-up should be done.

UPDATE ON THE MANAGEMENT OF CAROTID STENOSIS (CEA VS. STENTING)

M.M. Brown

Institute of Neurology, University College London, London, UK

Introduction: Endarterectomy (CEA) was shown to be superior to best medical treatment in selected patients with symptomatic carotid stenosis randomised in trials started >20 years ago. Carotid stenting (CAS) avoids some of the risks of CEA, but early trials led to concern about the risks of stroke from stent deployment.

Recent trials: ICSS showed higher 30-day rates of stroke or death after CAS than after CEA (7.4% vs. 3.4%, risk ratio 2.13, $p=0.0004$). In the MRI sub-study, there more patients with ischaemic lesions after CAS than CEA (50% vs. 17%, $p < 0.0001$). Data from ICSS, EVA-3S and SPACE pooled in a meta-analysis, showed that the excess risk of stroke or death with CAS is mainly in patients aged >70 years (12.0% risk vs. 5.9%) whereas the risk was identical in younger patients (5.8% vs. 5.7%). CREST showed similar stroke and death rates, but patients were screened for MI which was more common after CEA. Both treatments appear to have similar long-term effectiveness, but further data from ICSS are awaited.

On-going trials: Several trials compare CAS with CEA for asymptomatic stenosis. The Second European Carotid Surgery Trial (ECST-2) will compare modern optimised medical therapy alone with revascularisation in both symptomatic and asymptomatic patients.

Conclusions: CEA remains the mainstay of treatment. CAS is an alternative to CEA in patients at high risk from medical or surgical complications, and might also be reasonable in younger patients. The benefits of modern medical therapy need to be tested against CEA and CAS.

WHAT ARE CAROTID OR VERTEBRAL ARTERY DISSECTIONS AND THEIR MANAGERMENTS?

D. Leys

Stroke Unit, Neurology, Univ. Lille Nord de France, Lille, France

Cervical-artery dissection (CAD) is the leading cause of ischemic strokes occurring in young patients in western countries. Traumas and primary diseases of the arterial wall are the main identified causes of CAD. The pathophysiology of non-traumatic CAD remains unknown, but the most likely hypothesis is a genetic predisposition, CAD being triggered by an infection or a minor trauma. Paucisymptomatic cases of CAD are frequent and underdiagnosed. CAD may even remain silent. Clinical features consist of an association at various degrees of cervical pain or headache, ischemic events, peripheral or sympathetic nerves injury, and pulsatile tinnitus. Non-invasive techniques should be used to detect, monitor and follow-up CAD, because of the usually favourable outcome, and the potential risks of catheter angiography. Nowadays, the diagnostic strategy should be based on ultrasonography and MRI/MRA, or angio-CT in case of contra-indication for MRI. In the absence of randomised trial, the most widely used therapy is anticoagulation, but many centres use aspirin. Although the functional outcome of CAD is good in most patients, the socio-professional impact can be important. Mortality and short-term recurrence rates are low but possibly underestimated. Further research is warranted to improve our understanding of the underlying pathophysiology, evaluate the long-term outcome and ultimately ameliorate treatment and prevention strategies.

Poster Board Number: 1

ROLE OF ONION JUICE ON OBESITY AND THE PROTECTION ON CARDIOVASCULAR DISEASES

C.K. Wang

School of Nutrition, Chung Shan Medical University, Taichung, Taiwan R.O.C.

Objective: Onion is widely distributed in the world and used as a vegetable. Alkyl sulfoxides and quercetin derivatives were important health indicators in onion. This study was focused on the improvement of obesity and cardiovascular diseases by human clinical trial and also cell models.

Methods: A randomized, parallel and placebo controlled study was used for evaluation the effect of onion juice on body fat, blood lipids and inflammation. Subjects with BMI higher than 27 and also with board line blood lipids were included. Raw264.7 macrophage cell induced by 3T3-L1 cell models were used to understand the effect on lipid formation and accumulation also also anti-inflammation.

Results: Administration of 100 mL of onion juice clearly reduced the body weight, body fat, waist, serum cholesterol, fasting blood glucose and increased the insulin sensitivity. Total free radicals and superoxide anion radical contents in blood were greatly reduced. In addition, the lag time of LDL oxidation was significantly increased. In cell model, onion significantly reduced the formation and also accumulation of triglyceride in 3T3-L1 cells. The inflammation was found greatly suppressed. Sulfoxides and quercetin derivatives play important role for this health benefits.

Conclusion: Onion clearly played important roles on the improvement of cardiovascular diseases and also obesity. Quercetin derivatives and sulfoxides were critical contributors.

Poster Board Number: 2

MULTI-MODAL IMAGING OF ATHEROSCLEROTIC AORTIC ARCH PLAQUES

F. Abd Allah, Neurovascular Ultrasound Lab.

Cairo University, Cairo, Egypt

Background: Atherosclerotic aortic arch plaques (AAP) have been linked to an increased risk of thrombo-embolic events as a cause of acute ischemic stroke of undetermined etiology.

Objectives: To find out the presence of atherosclerotic plaques in aortic arch and their potential role as a source of embolism in cerebral infarction of undetermined etiology.

Methods: We performed trans-esophageal echocardiography (TEE) and multislice computerized tomography (MSCT) of the aortic arch on 30 patients with acute ischemic stroke of undetermined cause from a total series of 150 non-selected patients with acute ischemic stroke studied prospectively by clinical evaluation, laboratory investigations, cranial computed tomography, color coded duplex ultrasonography of the carotid arteries and transcranial Doppler (TCD).

Results: Using trans-esophageal echocardiography eight patients (29.6%) had atherosclerotic aortic arch plaques, while using multislice computerized tomography atherosclerotic aortic arch plaques were revealed in twelve patients (40%). Atherosclerotic aortic arch plaques were significantly related to older age, male gender, hypertension, ischemic heart disease and low-grade atherosclerotic carotid lesions. Multislice computerized tomography of the aortic arch was more sensitive than trans-esophageal echocardiography in detecting the site, size and characters of atherosclerotic aortic arch plaques.

Conclusion: Atherosclerotic aortic arch plaques are a frequent finding in patients with acute ischemic stroke of undetermined cause supporting the hypothesis that aortic plaques have embolic potential. In addition, multislice computerized tomography is more sensitive than trans-esophageal echocardiography in detecting atherosclerotic aortic arch plaques and better characterization of these plaques especially relevant one.

Poster Board Number: 3

ASSOCIATION OF SEVERE HYPERTRIGLYCERIDEMIA (SHTG) AND GENETIC LIPOPROTEINLIPIASE (LPL) MUTATION AND CARDIO- OR CEREBROVASCULAR DISEASE

I. M.Missala, U. Kassner, C. Gelsinger, N. Gauer, L. Steimann, E. Steinhagen-Thiessen

Lipid Clinic, Charité Universitätsmedizin Berlin, Berlin, Germany

Background: SHTG may develop due to mutation of the LPL-gene. The LPL-enzyme hydrolyses triglycerides in very-low-density-lipoproteins(VLDL) and chylomicrons, initiating the lipolytic process with transformation of VLDL into low-density-lipoproteins(LDL) and chylomicrons into chylomicron-remnants. Homo-/heterozygote SHTG leads to severe diseases due to decreased high-density-lipoprotein(HDL), impaired glucose-tolerance and rheology, high pro-thrombogenic status and high risk of pancreatitis. Our aim was to identify (1)LPL-gene-mutations, (2)Comorbidities and (3)Positive family history.

Methods: 32 SHTG patients (TG >1700mg/dl) in the Lipid clinic Charité - Universitätsmedizin, Berlin were included. Two fasting-conditions saliva samples were taken for DNA analyses and blood samples. Assessment of individual and family comorbidities was undertaken.

Results:

AGE SHTG diagnosis, years (mean)	48,28
SEX male, n female, n	26 6
TG VALUE recorded at diagnosis timepoint (mean, mg/dl)	2568,59
HDL at HR (n) < 40mg/dl > 40mg/dl not measurable	4 18 10
abdominal pain (%)	25
BMI (kg/m ²), mean	28,53
diabetes type II (%)	40,6
hypertension (%)	62,5
regular alcohol intake (%)	75
current smoker % Ex-smoker %	43,8 21,9

[SHTG related comorbidities]

Table1 shows a positive association of SHGT and high BMI, low HDL, hypertension, alcohol intake, smoking, abdominal pain and diabetes type II. The DNA-analysis still undergoes examination.

Conclusions: Our results show a strong association of SHGT and different comorbidities. It differs for various LPL-gene mutations. SHGT remains an important cardio- and cerebrovascular risk factor.

Poster Board Number: 4

PAINLESS ACUTE AORTIC DISSECTION PRESENTED WITH TRANSIENT RIGHT HEMIPARESIS FOLLOWED BY SHOCK: A CASE REPORT

N. Ishige¹, H. Tanno¹, H. Ozaki¹, Y. Fuse¹, Y. Yoshida¹, H. Tanaka², M. Masuda²

¹Neurosurgery, ²Cardiovascular Surgery, National Hospital Organization Chiba Medical Center, Chiba, Japan

It is not easy to diagnose acute aortic dissection (AAD) presenting with neurological symptoms without chest pain in an acute phase. We report a case of painless AAD which developed transient hemiparesis and then unexpectedly fell into shock.

Case: A 55-year-old hypertensive female was admitted 1.5 hours after developing right hemiplegia and aphasia. At that time, her blood pressure was 122/70 and she had already become asymptomatic. Her MRI showed left lacunar infarct in DWI. MRA revealed a left internal carotid artery occlusion (ICAO), which seemed to have been present prior to admission. She did not complain of chest pain throughout. Seven hours later, she suddenly became comatose, and her systolic blood pressure dropped to 60mmHg. Through examination of enhanced chest CT scans, we diagnosed DeBakey II type AAD, complicated by cardiac tamponade. Emergency replacement of the ascending aorta was carried out. The dissection was found to extend up to the orifice of the innominate artery. A left decompressive craniectomy was necessary three days later. Following rehabilitation for right hemiparesis and aphasia, she became ambulatory and regained satisfactory speech.

Discussion: We have retrospectively determined that her initial symptoms were caused by cerebral hypoperfusion, which occurred not only because of the left ICAO but also the masked AAD. Reports that lone right-sided hemiparesis is much less frequent than left in AAD cases delayed our diagnosis. Rapid diagnosis of painless AAD still remains a challenge to doctors engaged in intravenous thrombolytic treatment for acute ischemic stroke.

Poster Board Number: 5

A PATIENT WITH MULTIPLE NEUROLOGICAL COMPLICATIONS DUE TO PAINLESS ACUTE AORTIC DISSECTION

S. Frol¹, A. Resman Gaspersic¹, J.M. Kalisnik², I. Knezevic², B. Zvan¹

¹*University Clinical Centre, Clinic of Vascular Neurology,* ²*University Clinical Centre, Clinic of Cardiovascular Surgery, Ljubljana, Slovenia*

Introduction: Painless aortic dissection is well known, although rare cause of stroke. Immediate recognition is mandatory for appropriate treatment, which is urgent surgery and resign from thrombolysis. Other neurological deficit on aortic dissection is attributable to ischemia of the spine and peripheral nerves.

Case report: A 50-year-old man experienced acute left-sided hemiplegia. He was referred to our hospital two hours after the onset of symptoms, as a candidate for thrombolytic treatment. Computed tomography (CT) showed right-sided frontal cerebral edema and CT perfusion loss of perfusion in the same area. CT angiography (CTA) revealed dissection of both common carotid arteries, which directed us to suspicion of aortic dissection. Aortic CTA confirmed type A aortic dissection. The urgent operation was done, aortic valve was preserved and tubular graft was imposed in the ascending aorta. Three weeks postoperatively the patient was alert, with left central facial paresis, slight paresis of left arm and paraplegia, Th 12 sensibility level. With further examinations we confirmed ischemic brain damage, ischemic myelopathy and lumbosacral plexopathy.

Discussion: Painless aortic dissection is as a cause of stroke difficult to recognise. At our department work-up of patients for thrombolytic treatment, include head CT and CTA of neck and brain arteries. CTA provides us important information, which directs us to appropriate treatment (thrombolysis, mechanical thrombectomy), with minimal elongation of door to needle time. It allows us to recognise rare causes of stroke such as aortic dissection. Despite urgent treatment, clinical outcome of patients with aortic dissection is not necessarily good.

Poster Board Number: 6

EMERGENCY OPERATION IN A PATIENT WITH DELAYED DIAGNOSIS OF AORTIC DISSECTION PRESENTING WITH ACUTE ISCHEMIC STROKE AND UNDERGOING THROMBOLYTIC THERAPY

S. Yamashiro, Y. Kuniyoshi, R. Arakaki, Y. Kise, T. Maeda, T. Nagano

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Objective: Neurological deficits have often been associated with aortic dissection, caused mainly by ischemic stroke. In such cases, they have been found to clearly worsen the prognosis because of difficult to diagnosis. We report a patient who initially presented as having a stroke and was later discovered to have aortic dissection, and undergoing thrombolytic therapy.

Case description: A 68-years-old man suddenly lost consciousness while talking. A few minutes later, he recovered consciousness but had weakness in his left side. He did not complain of any chest pain during this episode. He was given recombinant tissue plasminogen activator (rt-PA). Thereafter, dissecting intima in the right common carotid artery was detected with neck duplex scanning. Chest CT disclosed a Stanford type A aortic dissection. We performed emergent operation because right common carotid artery was severely stenosis due to a false lumen. Under deep hypothermic circulatory arrest with antegrade selective cerebral perfusion, graft replacement of ascending aorta was performed. Although, the patient underwent 8 hours prolonged operative time because of the development of severe coagulopathy he discharged at 28 postoperative days without any neurological deficit.

Conclusion: It is strongly suggested that before using thrombolytic therapy for acute ischemic stroke, aortic dissection should be carefully considered as a cause. Color Doppler neck duplex scanning is useful noninvasive techniques for diagnosis. We think that even with the misuse of rt-PA in aortic dissecting patients, emergency aortic surgery should also be accomplished to provide the best chance for salvage and the improvement of neurological function.

Poster Board Number: 7

THE CAROTID STIFFNESS IN PATIENTS WITH ISCHEMIC LEUKOARAIOSIS

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Background: Ischemic leukoaraiosis (IL) is an important clinical state due to its relationship with cognitive decline and gait disturbances. Pathogenesis of the disease is still unknown. So far it has been no evidence of a connection between arterial stiffening of common carotid artery and IL. Therefore the aim of this research was to determine common carotid artery stiffness in patients with IL. We hypothesis that stiffness of common carotid artery is increased in patients with IL.

Methods: 20 patients with IL and 21 healthy controls were assessed in this study. Groups were matched in age, sex. Anamnestic data for stroke and coronary heart disease risk factors were obtained in addition to MRI and CT scans. Common carotid artery stiffness was measured using Doppler method (ALOKA α 10). We assessed both β index of arterial stiffness and intima-media thickness. Statistical differences between the patients and controls were calculated using t-test and chi-square test. Relationship between was assessed using logistic regression model.

Results: t-test have shown that β index is increased in patients with IL ($p < 0.05$). Other stroke risk factors such as sex, age, diabetes, smoking, hypertension, and intima-media thickness there was no statistical significance between patients with IL and controls ($p > 0.05$). Logistic regression models have shown significant relationship between β index and IL ($p < 0.01$; OR 2.1; CI 95% 1.3-4.59).

Conclusions: Common carotid artery stiffness is increased in patients with IL which can be an important pathological factor in etiology of IL.

Poster Board Number: 8

INSULIN RESISTANCE IS AN IMPORTANT RISK FACTOR FOR ISCHEMIC STROKE IN NON-DIABETICS

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Background and aims: Insulin resistance (IR) with compensatory hyperinsulinemia plays a crucial role in the pathogenesis of atherosclerosis, but their role in ischemic stroke (IST) has not yet been elucidated. Study was aimed to analyze IR and plasma insulin (PI) levels, dyslipidemia pattern, abdominal obesity and plasminogen activator inhibitor-1 in 100 patients with atherothrombotic IST (group A), 100 patients with asymptomatic carotid stenosis (ACAS) $\geq 50\%$ (group B), 100 patients with lacunar stroke (Group C) and 115 healthy controls (group D) all without diabetes mellitus.

Methods: IR was determined by Homeostasis Assessment Model, PI levels by Radioimmunoassay. Total-, LDL- and HDL-cholesterol and triglyceride levels were measured in all groups. Central obesity was determined by waist circumference and hypercoagulable state by plasminogen activator inhibitor (PAI-1) levels.

Results: IR was significantly higher in group A compared to group B, C and D (4.82 ± 0.27 vs. 3.69 ± 0.22 , $p < 0.05$; 4.82 ± 0.27 vs. 2.71 ± 0.21 , $p < 0.01$, 4.82 ± 0.27 vs. 1.50 ± 0.19 , $p < 0.01$). PI levels were significantly higher in group A in comparison to group B, C and D (19.00 ± 1.2 vs. 15.95 ± 0.88 , $p < 0.05$; 19.00 ± 1.2 vs. 11.12 ± 0.19 , $p < 0.01$, 19.00 ± 1.2 vs. 7.12 ± 1.08). Different patterns of dyslipidemia were observed in ACAS and IST. PAI-1 levels, and waist circumference were significantly higher in group A, B, and C in comparison to controls ($p < 0.01$, respectively).

Conclusion: Our results indicate that all subtypes of ischemic stroke as well as ACAS are strongly associated with IR and increased PI and PAI-1 levels. Specific patterns of dyslipidemia in ACAS and IST were observed.

Poster Board Number: 9

INTIMA-MEDIA-THICKNESS PREDICTS STROKE RISK IN THE GENERAL POPULATION IN ASSOCIATION WITH VASCULAR RISK PROFILE, AGE AND MALE GENDER

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Background and aims: Individual risk stratification requires reliable information on preexisting vascular disease. The intima-media-thickness of the common carotid artery (CIMT) is a non-invasively accessible marker of atherosclerosis, which can be used for risk evaluation. Herein, we evaluated its impact on stroke incidence in addition to risk factors that are part of the Framingham risk score (FRS).

Methods: In 3669 initially stroke-free subjects from the population-based Heinz Nixdorf Recall Study (60±8 years, 51% male) various cardiovascular risk factors were measured and stroke events were registered during a mean time interval of 85.3±17.4 months. Cox proportional hazards regressions were used to evaluate determinants of stroke risk including FRS variables plus CIMT and in a next step compound risk groups made up from FRS and CIMT terciles.

Results: CIMT was a moderate independent stroke predictor (hazard ratio=1.201, confidence interval=1.004-1.438; p< 0.05) in addition to age (1.458, 1.212-1.753; p< 0.001), systolic blood pressure (1.161, 1.040-1.296; p< 0.01) and smoking (1.957, 1.142-3.351; p< 0.05). Stroke risk was elevated in subjects belonging to the highest Framingham risk score (>13%) and CIMT (>0.715 mm) terciles. CIMT predicted stroke risk in men (1.313, 1.073-1.607; p< 0.01), but not women (0.940, 0.667-1.325; n.s.). The predictive value of CIMT was positively associated with age (1.138, 1.019-1.270; p< 0.05).

Conclusions: CIMT is an independent stroke predictor in male subjects with vascular risk profile.

CARDIOVASCULAR OUTCOME IN PATIENTS WITH THE METABOLIC SYNDROME: RELATIONSHIPS WITH SMOKING AND SUBCLINICAL ATHEROSCLEROSIS, USING DIFFERENT CRITERIA FOR ASSESSING THE SYNDROME

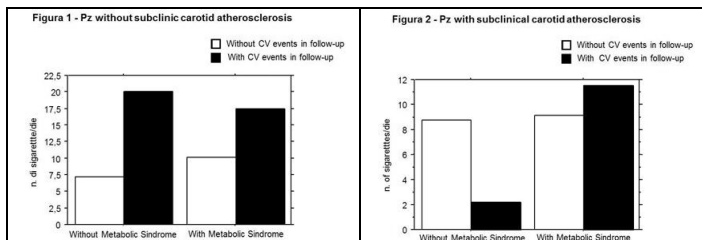
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Aims: We compared the performance of three different diagnostic criteria for assessing the metabolic syndrome (MS) with the ability to predict future cardiovascular events, in the presence or absence of subclinical atherosclerosis (e.g., asymptomatic carotid intima-media thickness between 0.9 and 1.3 mm).

Methods: In a population of 688 subjects we compared the prevalence of MS using the diagnostic criteria proposed by the Adult Treatment Panel III (ATP III) in 2001, the joint American Heart Association (AHA) / National Heart Lung and Blood Institute (NHLBI) in 2005 and the International Diabetes Federation (IDF) in 2005. The study included a medical assessment, biochemical analyses and the eco-color-doppler examination of carotid arteries B-mode ultrasonography. Main cardiovascular risk factors were also investigated. All patients were followed-up for 5 years in order to assess cardiovascular morbidity and mortality.

Results: The prevalence of the MS was 37% in using the ATP-III criteria; In the absence of subclinical atherosclerosis, both subjects with and without MS had significantly higher prevalence of clinical events in relation to increased smoking habit ($p < 0.05$, figure 1). By contrast, in the presence of subclinical atherosclerosis, reduced events were noted in subjects without MS, although stronger smoking habit was present; in addition, as expected, subjects with MS had significantly higher prevalence of clinical events with increased smoking habit ($p < 0.05$, figure 2). The overall difference between subjects with and without subclinical atherosclerosis was still significant ($p=0.0263$).



Conclusion: The ATP-III criteria have shown a significant relationship with smoking and subclinical atherosclerosis.

Poster Board Number: 11

SAFETY OF CAROTID ENDARTERECTOMY WITH APPLICATION OF TEMPORARY INTRALUMINAL BYPASS

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Carotid endarterectomy (CA) with application of temporary intraluminal bypass (TIB) is used in inefficiency of collateral blood flow through Willis circle. Intraprocedural transcranial Doppler sonography (TCD) with estimation of residual blood flow index (RBFi) allows determining of indications for TIB.

Purpose: To evaluate safety of CA with TIB and to determine leading mechanisms of complications.

Material/methods: 59 asymptomatic patients with internal carotid stenosis more than 60% who underwent CA were studied. Diagnosis was determined by TCD and digital subtraction angiography of cerebral arteries. Intraprocedural TCD monitoring of cerebral blood flow was performed. RBFi was calculated. 16 patients underwent CA with TIB (first group), 43 patients - CA without TIB (second group).

Results: In the first group complications appeared in 3 patients (18.8%) and consisted of ischemic stroke in 2 patients (12.5%) and myocardial infarction (MI) in 1 patient (6.3%). In the second group complication (MI) was observed only in 1 patient (2.3%). Significant differences of complication incidence were revealed between two groups ($p < 0.05$). In the first group moderate correlation between intensity of microembolism and presence of cerebral ischemic complications was shown (Spearman rank correlation $R=0.63$, $p < 0.05$).

Conclusion: TIB is a risk factor of embolic complications in CA. Intraprocedural TCD with calculation of RBFi allows decreasing of TIB application that leads to the reduction of complications of CA.

Poster Board Number: 12

INFLUENCE OF SYSTOLIC BLOOD PRESSURE ON COMMON CAROTID ARTERY STIFFNESS

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Arteriosclerosis causes changes of arterial vessel walls resulting in vessel wall thinning and reduction of natural blood vessel elasticity. Risk factors (RF) such as raised blood pressure (BP) accelerate this process by bringing imbalance into healthy vessel aging process. Studies show positive correlation between reduced carotid elasticity and incidence of stroke.

The aim of our study was to show the correlation between changes in carotid arterial stiffness (AS) and systolic BP, and note differences between AS in men and women in correlation with systolic BP.

Fifty healthy volunteers participated in the study. Subjects with an IMT >8mm at 1.5 cm proximal of carotid bifurcation were excluded from the study. Subjects had no clinical signs of stroke, TIA, diabetes or other serious illness. Measurements were done on both common carotid arteries, 1.5 cm proximal of carotid bifurcation, using an Aloka Prosound 5500 ultrasound machine with eTracking software application.

Subjects were grouped into 5 categories of systolic BP, from 110-150mmHg. In women, a continuous increase in AS was noticed in categories of 110-150mmHg. In men, changes of systolic BP from 110-140mmHg did not show a significant increase in AS. A significant increase in AS was noted in group of male patients with systolic BP from 140-150mmHg.

We found indices that men and women react differently to systolic BP raise in means of AS. Systolic BP increase above 140mmHg causes a serious reduction in carotid artery elasticity and presents one of most important modifiable RF for CVD for both sexes.

CARDIAC PULSATING EFFECT TO THE STABILITY OF INTRACRANIAL ARTERIAL PLAQUE

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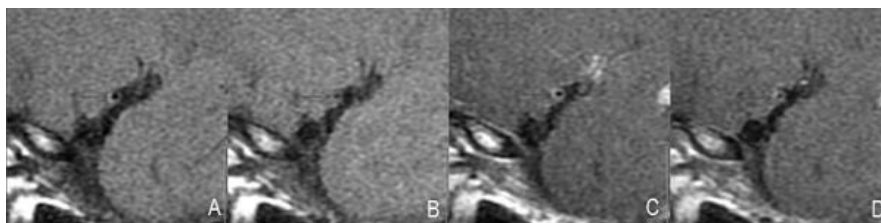
Background: Intracranial atherosclerotic plaque existed in 59% of patients with ischemic stroke. Annual risk for stroke is higher in symptomatic MCA stenosis. Assessment of plaque and wall using high-resolution MRI is help to evaluate the plaque stability. The aim of this study is to discover change of intracranial artery diameter by HR-MRI with and without cardiac gating in the normal and atherosclerotic arteries.

Methods: The inclusion criteria were as follows;

(1) patients with acute ischemic stroke;
(2) intracranial stenosis on TOF- MRA. HR-MRI was performed using 3.0T machine. Imaging sequences were T1 weighted and contrast enhancing T1 weighted with and without cardiac gating. Mann-Whitney U test was used to compare the rate of diameter change.

Results: 24 intracranial arteries were studied. The rate of changes for diseased arterial diameter between HR-MRI with and without cardiac gating were significantly different($p=0.001$). Figure 1 showed differences of arterial diameter by applying cardiac gating.

Conclusion: Dispersion of wall stress changed disproportionably in the atherosclerotic artery due to relative stiffness of atherosclerosis. This study revealed that diseased intracranial artery presented considerable change of diameter. These mean that wall stress by pulsation is higher in the atherosclerotic arteries and thin fibrous cap and shoulder of plaque were able to rupture. Wall stress for cardiac pulsation can affect the plaque stability in atherosclerotic arteries.



[Figure 1]

Sagittal images of stenotic MCA.

- (A) T1-weighted.
- (B) T1-weighted with cardiac gating.
- (C) Contrast-enhanced T1-weighted.
- (D) Contrast-enhanced T1-weighted with cardiac gating.

ASPIRIN AS A PROMISING AGENT FOR DECREASING INCIDENCE OF CEREBRAL ANEURYSM RUPTURE

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Background: Chronic inflammation is postulated as an important phenomenon in intracranial aneurysm (IA) wall pathophysiology. This study was conducted to determine if aspirin use impacts the occurrence of IA rupture.

Methods: Subjects enrolled in the International Study of Unruptured Intracranial Aneurysms (ISUIA) were selected from the prospective untreated cohort (n=1691) in a nested case-control study. Cases were subjects who subsequently suffered a proven aneurysmal SAH during a 5-year follow-up period. Four controls were matched to each case by site and size of aneurysm (58 cases, 213 controls). Frequency of aspirin use was determined at baseline interview. Aspirin frequency groups were analyzed for risk of aneurysmal hemorrhage. Bivariable and multivariable analyses were performed using conditional logistic regression.

Results: A trend of a protective effect for risk of IA rupture was observed. Patients who used aspirin 3x weekly - daily had an odds ratio (OR) for hemorrhage of 0.40 [95% CI=0.18-0.87, reference group = no use of aspirin], patients in the "< once a month" group had an OR of 0.80 (95% CI=0.31-2.05) and patients in the "> once a month - 2x/week" group had an OR of 0.87 (95% CI=0.27-2.81) (p= 0.025). In multivariable risk factor analyses, patients who used aspirin three times weekly to daily had a significantly lower odds of hemorrhage (Adjusted OR=0.67, 95% CI 0.11-0.67, p=0.03) compared to those who never take aspirin.

Conclusions: Frequent aspirin use may confer a protective effect for risk of IA rupture. Future investigation in animal models and clinical studies is needed.

Poster Board Number: 15

A COMPARISON OF ULTRA-SONOGRAPHY VS. CT ANGIOGRAPHY IN THE DIAGNOSIS OF THE STENOSIS OF VERTEBRAL ARTERY ORIGINS

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Background: We investigated to compare the findings of luminal stenosis of vertebral artery origins on CTA or MRA with those on duplex carotid sonography.

Methods: We enrolled ischemic stroke patients who got both duplex ultrasonography and CTA. The V2, V1 portion were insonated with B-mode image of duplex ultrasonography. CTA data were evaluated for the focal stenosis of vertebral artery origins (VAo). The stenosis or occlusion of VAo on ultrasonography or CTA was interpreted. The comparison of the results from both methods was performed. The factors accounting for discordance of the results from two methods were identified.

Results: Total 74 patients were analyzed. Among 19 patients who had steno-occlusion of right VAo on CTA, only 4 patients had stenosis at duplex sonography. In 3 patients who did not have any steno-occlusion at CTA, atherosclerotic plaque was observed on duplex sonography. Regarding the left side, 2 patients had stenosis on sonography among 17 patients who had steno-occlusion of VAo on CTA. The accordance of the results from both methods was 70.3% on left side and 75.7% on right side. Comparing characteristics of the CTA positive but duplex negative group, with those others (n= 27 vs. 45), there was no significant difference of risk factors. They tended to have more stenosis of other vessels (22/45 vs. 19/27, p=0.075).

Conclusions: 41% of all showed discordance between CTA and ultrasonography. 23~26% of patients showed stenosis on CTA but not on ultrasonography. For the better diagnosis of VAo, the two methods can be used complementarily.

INVESTIGATING THE ASYMMETRY OF VASOREACTIVITY ON THE MIDDLE CEREBRAL ARTERY TERRITORY IN PATIENTS WITH UNILATERAL SEVERE ATHEROSCLEROSIS USING BLOOD OXYGENATION LEVEL DEPENDENT (BOLD) CONTRAST

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Background and aims: The BOLD (Blood Oxygenation Level-Dependent) contrast can be used to assess the cerebrovascular reactivity (CVR) at the microvascular level during baseline and also during hemodynamic stress, like after a hypercapnia challenge. The aims of this study was to compare the BOLD signal parameters on the ipsilateral hemispheres (IH) and contralateral hemispheres (CH) within the Middle Cerebral Artery (MCA) territory, using an auditory stimulus, at different levels of hypercapnia in patients with severe unilateral carotid stenosis.

Methods: The images were obtained from 20 patients with severe carotid stenosis. Patients were submitted to an auditory stimulus (3s) in three different conditions: normocapnia and at EtCO₂ increase of 5 and 10mmHg. The images were acquired with a 3T Philips MR, preprocessed and analyzed using an autoregressive method.

Results: The area under the BOLD curve from the IH was different from the CH during the basal condition and at 5mmHg ($p < 0.0001$), but not at the 10mmHg ET_{CO}₂ increase. The major differences between the hemispheres were the onset time ($p < 0.0001$) and amplitude of BOLD signal ($p < 0.0001$). While the IH presented no significant variations with the CO₂ increment in any BOLD parameter, the CH showed significant increase on the onset and amplitude decrease.

Conclusion: In our study the BOLD signal of the IH did not respond to the hypercapnic stress as the CH, indicating that our protocol is reliably to identify an exhausted CVR. Future studies using this technique may help to identify and select patients with severe carotid stenosis for revascularization interventions.

Poster Board Number: 17

OCCULT ATRIAL FIBRILLATION AFTER NON-CRYPTOGENIC, NON-CARDIOEMBOLIC ISCHEMIC STROKE DETECTED WITH THREE WEEKS OF OUTPATIENT TELEMETRY

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Background: The incidence of occult atrial fibrillation (OcaF) in patients with cryptogenic strokes is under intense study. However, the detection of OcaF after stroke of known cause has the same treatment implications, and has not been investigated. We sought to determine the incidence of OcaF in patients with lacunar stroke or stroke due to large artery disease in the cervical or intracranial circulation.

Methods: We prospectively performed 3 weeks of mobile telemetry with automatic real-time AF detection in 31 (of a planned 100) patients.

Results: All patients were seen by a vascular neurologist and underwent CTA or MRA of the head and neck; transthoracic and/or transesophageal echocardiography, and at least 24 hours of in-patient telemetry. In our first 31 patients, average age was 63 years, 58% were male, 90% had hypertension, 33% had diabetes, 52% smoked, and 13% reported palpitations. Stroke mechanisms were lacunar stroke (47%), cervical artery atherosclerosis (20%) and intracranial atherosclerosis (33%). We identified OcaF in 1 patient on day 16 of monitoring; she was switched to oral anticoagulation from antiplatelet therapy. We also identified one patient who required a pacemaker due to repeated asystole.

Conclusion: Occult AF may occur after non-cardioembolic stroke of known cause, but its incidence may be low, at least when patients are monitored for 3 weeks. The yield of longer-term monitoring is unknown. We plan to enroll a total of 100 patients in this study.

Poster Board Number: 18

ATRIAL FIBRILLATION IN A FIRST LEVEL HOSPITAL: TREATMENTS AND COMPLICATIONS

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Background and aims: To establish the way patients are treated of atrial fibrillation in a local hospital, and the complications they present.

Methods: Observational prospective study of the 126 cases of patients with atrial fibrillation (AF) treated in the emergency service of our hospital between June first and August thirty first 2011.

Results: 61% of the patients were not taking any treatment for AF before they came to the hospital. 60% of the patients received treatment with amiodarone, 12% with flecainide, 10% with beta blockers and 18% with digoxin. 85% were discharged with their AF reversed or controlled, 10% were hospitalized, and 5% of the patients died. 9.3% of the patients left the hospital treated with amiodarone, 24.6% with beta blockers, 22% with digoxin, 10.5% with dronedarone 12% with flecainide, and 21.6% left the hospital without specific treatment for AF.

6% of the patients suffered from complications due to their anticoagulant treatment, 50% of them more than once.

36% suffered relapses of AF that had to be treated back in the hospital. Of them 14% were taking previous treatment with amiodarone, 25% with beta blockers, 25% with digoxin, 14% flecainide, 7% with dronedarone and 10% were not taking any treatments.

Conclusions: Atrial fibrillation is a disease that emergency physicians have to deal with very often. There are several strategies used to treat AF, being B blockers a digoxin the most frequently chosen. Patients taking dronedarone have statistically significant less relapses than those taking beta blockers or digoxine.

CELL-BASED THERAPY FOR PATIENTS WITH CARIOGENIC CEREBRAL EMBOLISM

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Background and aim: Cardiac disease is one of the major causes of cerebral infarction and cardiogenic cerebral embolism causes severe permanent neurological damage. Recently, intravenous administration of bone marrow derived mononuclear cells had been shown to improve functional recovery through enhanced angiogenesis in experimental stroke model. Based on these observations, we have started phase 1/2a clinical trial of cell-based therapy for patients with cardiogenic cerebral embolism (ClinicalTrials.gov ID: NCT01028794).

Methods: Major inclusion criteria is the patient diagnosed with sever cardiogenic cerebral embolism (more than 9 in NIHSS score at day 7 after onset of stroke) in age 75 or younger. Patient has 25ml (low dose group, n=6) or 50ml (high dose group, n=6) of bone marrow aspiration on day 7-10 after onset of stroke. Autologous bone marrow derived mononuclear cells are purified by density gradient method at cell processing center and administrated intravenously in the day of cell aspiration. Primary endpoint is the safety and improvement of NIHSS, compared with our historical control.

Results: We have treated 6 patients in low dose group and 2 patients in high dose group. No adverse effects were observed so far and most of the patients showed significant improvement of neurological function at 6 months after cell transplantation. No enrolled patients showed worsening of NIHSS score at 30 days after treatment, compared with before treatment.

Conclusion: Autologous bone marrow mononuclear cells transplantation is likely to be safe, feasible and improve functional recovery. Statistical analyze is scheduled after completing 12 patients.

Poster Board Number: 20

THE IMPACT OF PREVIOUS ANTICOAGULATION ON INTRAVENOUS THROMBOLYTIC THERAPY IN PATIENTS WITH CARDIOEMBOLIC STROKE

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Background and aims: Stroke is a major complication of atrial fibrillation (AF). Warfarin can reduce this risk with a target International Normalized Ratio (INR) of 2 to 3. Intravenous tissue plasminogen activator (IV tPA) is an allowed treatment of acute stroke in warfarin-treated patients only with INR < 1.7. We aimed to compare clinical features of patients with and without previous warfarin therapy who received IV tPA.

Methods: We obtained demographic data, stroke severity, INR, hemorrhagic complications, mortality and outcome from the records of IV tPA-treated AF-related stroke patients. Stroke severity was determined according to the National Institute of Health stroke scale (NIHSS) and functional disability by the modified Rankin scale (mRS).

Results: Twenty six stroke patients were defined as AF-related. 6 (23%) patients were on warfarin (WP) and their data were compared with non warfarin treated patients (NWP). WP were older with less percentage of men. The mean INR in WP was higher (1.5 vs 1.0, respectively, $p < 0.05$, ANOVA). Stroke severity on admission was similar. After IV tPA WP presented with more severe deficit (mean NIHSS 12 vs 8.4, respectively, $p < 0.002$). The mortality rate was higher and hemorrhagic transformation after IV tPA was more frequent in WP (33% vs 9% and 33% vs 4.5, respectively, $p < 0.001$). WP were more disabled at 3 months post-stroke (mRS 4 vs 3, respectively, $p < 0.05$).

Conclusions: Our data show poorer results of IV tPA in WP. More active selection for endovascular procedures is warranted for this category of stroke.

Poster Board Number: 21

CARDIOGENIC EMBOLISM IN PERFORANT ARTERIES AS THE CAUSE OF LACUNAR STROKE

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Background: Cerebral microangiopathy following arterial hypertension is considered to be main cause of lacunar stroke (LS). But there are reports that development of LS has different mechanisms not only small-artery disease. The purpose of this study was to determine the cardiogenic embolism in perforant artery can be cause of LS or not.

Material and methods: We have examined 211 patients with acute LS. We used diffusion-weighted MRI (Giroscan Intera Nova, Netherlands), transthoracic or transesophageal echocardiography, carotid duplex sonography (Vivid 7, USA), transcranial Doppler sonography with microemboli detection (Sonomed-300, Russia); ECG (Nihon Konden, Japan), NIH Stroke Scale.

Results: Patients with LS according to diffusion MRI were divided in 3 groups: group I - single small (less than 15 mm) lacunar focus - 137 patients (64,9%); group II - large focus (more than 15 mm) or multiple small foci at the same vascular territory - 39 patients (18,5%), group III - multiple foci in different vascular territories or combination of lacunas and cortical infarcts - 35 patients (16,6%). LS caused by small-artery disease was revealed in 179 patients (84,8%). Stroke mechanism different from small-artery disease was revealed in 32 patients (15,2%). Potential sources of cerebral embolism were revealed significant less often in group I in comparison with group II ($p < 0,05$) and group III ($p < 0,01$). Neurological deficiency was more severe in patients group III ($p < 0,01$).

Conclusions: Embolism in perforant arteries can be the cause of LS. Multiple lacunas or combination of lacunas and cortical strokes is reliable cerebral embolism marker.

NO CHANGE IN INCIDENCE OF WARFARIN-ASSOCIATED HEMORRHAGIC STROKE BETWEEN 2001 AND 2009 -AN OBSERVATIONAL STUDY OF 8727 PATIENTS WITH PREVIOUS ISCHEMIC STROKE AND ATRIAL FIBRILLATION

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Background: The aim of this prospective observational study was to investigate the incidence of warfarin-related hemorrhagic stroke (HS) in patients with ischemic stroke (IS) and atrial fibrillation (AF), and whether this incidence has changed with time.

Methods: Using the Swedish Stroke Register, we identified first-event of IS in combination with AF and the prescription of warfarin at discharge during 2001 to 2008. We calculated incidence rates of subsequent HS and ischemic stroke and all-cause mortality. Adjusted incidence rate ratios (IRR) and 95% confidence intervals (CIs), comparing the period of 2001 to 2004 versus 2005 to 2008, were estimated in a Cox regression model.

Results: The proportion of AF increased from 25.2% to 27.4% ($p < 0.001$) in IS patients and the proportion of warfarin at discharge increased from 34.3% to 39.5% ($p = 0.001$) in IS patients with AF. Out of 8727 patients with IS, AF and warfarin at discharge, 42 (1.1%) had subsequent HS in the first period, and 50 (1.0%) in the second period. During a mean follow-up of 2.6 year, the incidence rate per 100 persons-years of HS was 0.43 in the first period and 0.40 in the second period (adjusted IRR 0.94; 95% CI 0.62 to 1.42). There was a trend towards a decrease in the composite rate of stroke (HS and IS) and death; adjusted IRR 0.94 (95% CI 0.87 to 1.02).

Conclusions: Despite the increased proportion of AF and warfarin prescription among IS patients, the incidence rate of subsequent HS did not increase during the 2000s.

Poster Board Number: 23

TOO OLD FOR WARFARIN? AGE BIAS IN THE TREATMENT OF ATRIAL FIBRILLATION

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Background: Atrial fibrillation (AF) is an independent risk factor for stroke, but actual risk of stroke depends on other risk factors, including age. Guidelines recommend people at high risk of stroke (e.g. CHADS₂ score ≥ 2) should be treated with anticoagulation. This analysis investigated the impact of age, gender and CHADS₂ score on initiation of warfarin therapy.

Methods: Data on risk factors for stroke and treatment of a cohort of patients aged ≥ 60 with new onset AF between 2000 and 2009 were extracted from the General Practice Research Database (GPRD).

Results: 81,381 patients (52% women) had AF diagnosed between 2000 and 2009. 21% were aged 60-69 at time of diagnosis, 37% were aged 70-79 and 42% were aged ≥ 80 . 57% of patients aged 60-69 were treated with warfarin in the first year after AF diagnosis, 55% of patients aged 70-79 and 32% of patients aged 80+. In each age stratum, men were more likely to be initiated on warfarin than women. In the subgroup of patients with CHADS₂ score ≥ 2 , only 33% of patients aged 80 and older were initiated on warfarin compared to 65% of patients aged 60-69 and 56% of patients aged 70-79 ($p < 0.0001$). 76% of people in AF aged ≥ 80 had a CHADS₂ score ≥ 2 .

Conclusions: Over a third of patients with AF are aged over 80. These patients are significantly less likely to be treated with anticoagulants than younger patients even though most people in AF in this age group are at high risk of stroke.

Poster Board Number: 24

NON-PRESCRIPTION OF WARFARIN IN PATIENTS WITH ISCHEMIC STROKE AND ATRIAL FIBRILLATION IN THE SETTING OF A STROKE UNIT

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Background: Recent studies indicate an underuse of warfarin in patients with ischemic stroke (IS) and atrial fibrillation (AF). The aim of this study was to identify causes for non-prescription of warfarin in patients with IS.

Method: 182 cases with AF, out of 674 (27%) consecutive patients with IS, admitted to Skåne University Hospital, Malmö, in 2008. Contraindications to the use of warfarin were retrieved from patient records. Bleeding risk by HASBLED and stroke risk by CHADS₂ were established retrospectively. Differences in demographics and HASBLED and CHADS₂ scores between patients with warfarin prescription versus not, were calculated.

Results: Of the 137 patients (137/182, 75%) who were alive at discharge, 93 (68%) were not prescribed warfarin. In 56 (60%) no information of contraindications for warfarin was found in patient records. The most common documented contraindication was risk of falling (32%), followed by former unsuccessful warfarin treatment (16%). Patients without warfarin prescription were older (mean age 83 vs 75, $p < 0.0001$), less often independent at admittance (51% vs 84%, $p = 0.0002$) and had higher stroke risk (CHADS₂ score ≥ 3 (97% vs. 82% $p = 0.005$)) as well as bleeding risk (HASBLED score ≥ 3 (35% vs 18% $p = 0.046$)) as compared to those with warfarin prescription.

Conclusion: Documented explanation for non-prescription of warfarin was lacking in a majority of the patients. Patients without warfarin were older and had both higher HASBLED and CHADS₂ scores maybe indicating that more concern had been pay to the risk of bleeding that to the risk of recurrent IS.

COURSE OF ISCHEMIC STROKE IN ATRIAL FLUTTER

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Atrial flutter / AFI/ is common tachycardia in the elderly population and it is a risk factor for ischemic stroke(IS).The aim of the present study was to assess the frequency of AFI in patients with IS and to evaluate the course of IS due to AFI. . A single centre , prospective study in patients hospitalized within 24 months with first -ever IS was conducted. .Course of IS in AFI , , cardiovascular risk factors were compared with patients with IS and permanent atria fibrillation (pAF) Of 880 patients admitted due to IS 20/2,4%/ has AFI , 106 / 12,65%/ had pAF the mean age and sex distribution were similar ($p > 0,05$) in AFI (75+-11, 75% females) and pAF (77+-10, 65%females) AFI were significantly($p < 0,05$), less often functionally dependent on admission 865%, mean mRS 3,15m, mean NIHSS 6,85) and discharge (20% , mRS 1,7 , NIHSS 2,65), comparing with those with pAF (admission 84%, mRS 3,8 , NIHSS 13,1 discharge 42%,mRS 3,13 NIHSS 7,67) In hospital mortality was higher in the pAF than in the AFI group (13% vs 0% , $p = 0,08$)patients with AFI had more oftenlacunar strokes than those with pAF (35% vs 7% $p = 0,003$ The multivariate analysis revealed that AFI was related to favourable ISoutcome (non dependence) comparing with pAF (OR 1,67,95%, CI 1,98-2,58 $p = 0,01$) We concluded that strokes in AFI were less severe comparing with aAF. Atrial flutter appeared to be a rare arrhythmia in patients with IS.

MRI-DETECTED BRAIN LESIONS AFTER BALLOON BASED PULMONARY VEIN ISOLATION FOR SYMPTOMATIC ATRIAL FIBRILLATION

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Background and aims: Left atrial catheter ablation (LACA) has become an established therapeutic approach to abolish symptomatic atrial fibrillation (AF). The prospective randomized “Mesh Ablator versus Cryoballoon Pulmonary Vein Ablation of Symptomatic Paroxysmal Atrial Fibrillation” (clinicaltrials.gov NCT01061931) study compared the efficacy and safety of two balloon based pulmonary vein ablation systems. Here we report the rate of new ischemic brain lesions post ablation using 3 Tesla high-resolution diffusion-weighted imaging (DWI).

Methods: Patients with symptomatic paroxysmal AF were randomized to LACA using the Arctic Front[®] (Medtronic, Inc.) or the HD Mesh Ablator[®] catheter (C.R. Bard, Inc.). All patients underwent brain MRI within 2 days prior and after the ablation procedure.

Results: Of 44 patients enrolled, 37 (mean age 62.4 ± 8.4 years; 40.5% female; mean CHADS₂ score 0.9 ± 1.0) underwent LACA and were part of the as-treated-analysis. There was no clinically evident stroke but high-resolution diffusion-weighted imaging (DWI) detected new ischemic lesions in 15 (40.5%) patients after LACA. Four (26.7%) of the HD Mesh Ablator[®]-patients and eleven (50.0%) of the Arctic Front[®]-patients suffered a silent stroke (p=0.19). Lesion volumes varied from 12-150 mm³ and one to five single lesions were detected per patient. Regarding silent strokes, there was no significant impact of activated clotting time-levels, periprocedural electrocardioversion or CHADS₂ score.

Conclusions: According to our data, clinically silent ischemic brain lesions were common after balloon-based LACA. However, there was no significant difference regarding the tested devices.

Poster Board Number: 27

CORRELATION OF SERUM URIC ACID LEVEL AND ATRIAL FIBRILLATION IN ACUTE ISCHEMIC STROKE TREATED WITH RT-PA

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The role of uric acid (UA) in ischemic stroke and cardiovascular disease is conflicting. In some studies higher UA is associated with increased cardiovascular mortality, while other suggesting that higher levels of serum UA predicted better stroke outcomes regarding to protective, antioxidant role. Following clinical outcome of our 103 thrombolised patients with defined levels of serum UA in 24 hours after stroke onset, we didn't find worse outcome in those with elevated serum UA. Patients with higher UA levels had higher systolic and diastolic blood pressure at admission, and lower NIHSS score. Significant lower proportion of intracerebral bleeding occurred in patients with higher UA levels (12:65; $t=2,53$; $P=0,020$) and we defined serum UA cut off value as 256 $\mu\text{mol/L}$. Patient with higher UA level had atrial flutter (AF) more frequently than others with statistical relevance ($t=-3,38$; $P=0,002$) and this result is conclusive to some recent studies demonstrated the implication of inflammation and oxidative stress in the pathophysiology of AF, regardless of the debate whether is it a cause or a consequence.

Our results are consistent with the results of possible neuroprotective role of UA in patients with acute stroke treated with systemic thrombolytic therapy.

Poster Board Number: 28

ANALYSIS OF FATAL BLEEDING ASSOCIATED WITH DABIGATRAN USE IN JAPANESE PATIENTS WITH ATRIAL FIBRILLATION

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Background and aim: Cases of fatal bleeding associated with dabigatran use in Japanese patients with atrial fibrillation (AF) were analyzed.

Methods: Risk factors for bleeding in Japanese AF patients, who died of major bleeding associated with dabigatran use after marketing in Japan were analyzed.

Results: Until September 13, 2011, 14 AF patients died of bleeding have been reported. In the 14 patients, 10 patients were aged over 80 years. Renal insufficiency was found in 9 patients, of whom creatinine clearance was lower than 30 mL/min (contraindicated) in 7 patients. Of 9 patients who took drugs that should be cautious for concomitant use, antiplatelet agents were prescribed in 7 patients. As to the sites of bleeding, gastrointestinal (GI) bleeding was seen in 9 patients and intracranial bleeding was observed in 3 patients (cerebral bleeding 1, subarachnoid hemorrhage 1, subdural hematoma 1). APTT was measured in 6 patients, which was over 60 seconds in 5 patients.

Conclusions: Majority of the patients died of excessive bleeding had risk factors for bleeding during dabigatran treatment. They were age over 80 years, renal insufficiency, and concomitant use of antiplatelet agents. Sites of fatal bleeding were GI tract in majority of the patients died. Measurement of APTT might be useful for monitoring the risk of serious bleeding in AF patients on dabigatran.

Poster Board Number: 29

ANALYSIS OF SYSTEMIC AND INTRACARDIAL HEMODYNAMIC STRUCTURE IN PATIENTS WITH CARDIOEMBOLIC STROKE AND ATRIAL FIBRILLATION

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Purpose: To establish correlations between systemic and intracardial hemodynamic and cardiac rhythm disturbances in the patients with cardioembolic stroke (CES) against a background of atrial fibrillation (AF) and with a continuous atrial fibrillation (AF).

Patients and methods: Sixty patients with CES and AF and 33 patients with AF were examined, by conducting general clinical examination, 24-hour monitoring of electrocardiogram and arterial blood pressure, and transthoracic echocardiography.

Results and discussion: The AF patients without CES displayed close correlations between left ventricle myocardium mass (LVMM) and minimal QT interval duration. This indicates that with an increasing LVMM there shortens the duration of minimal QT interval, syndrome of shortened QT ($r=0.62$) develops and the risk of sudden death rises.

The patients with AF and without CES showed negative correlations of general peripheral resistance of vessels and cardiac index ($r=-0.68$) and positive correlations between stroke and minute blood flow volume ($r=0.56$) with the number of >2 sec pauses and pulse arterial pressure in the day and night time. The presence of negative correlations between above-listed parameters points to the dysregulation of intersystemic correlations that narrows the range of adaptive possibilities of cardio-vascular system to various endo- and exogenic factors.

Conclusion: In the patients with CES compared to the patients with AF but without CES we observed paradoxical correlations between the indices of systemic and intracardial hemodynamics and cardiac rhythm disturbances that gives evidences for rearrangement of intersystemic hemodynamics, predisposing to an increased risk of repeated cardio-vascular events.

Poster Board Number: 30

CLINICAL CHARACTERISTICS AMONGST BRITISH PATIENTS WITH ATRIAL FIBRILLATION UNDERGOING CARIOVERSION (CV): THE UNITED KINGDOM RHYTHM-AF STUDY

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Background: Atrial Fibrillation (AF) and its associated co-morbidities, including CVD and stroke, is a substantial public-health problem. The UK RHYTHM-AF study aimed to characterise demographics and cardioversion patterns in patients with AF in the UK secondary-care setting.

Methods: UK RHYTHM-AF was part of a multinational-prospective, observational study in 8 European countries, Australia and Brazil. Consecutive patients aged >18 years who had documented AF at the time of admission and were considered for cardioversion from 14 hospital centres across the UK were included.

Results: In total, 279 patients had a mean age of 64 years and mean BMI 30kg/m². Two-thirds of patients had recurrent AF with co-morbidities including hypertension (60%), ischaemic-heart disease (15%), diabetes (16%), and heart-failure (12%; 47% were NYHA Class II). Interestingly, only 6% of patients had thromboembolic disease including stroke. Majority of patients (80%) were anticoagulated inline with guideline recommendations, and 6% had a pacemaker/ICD implantation or prior surgical therapy for AF (1.5%). Cardioversion was attempted in 144 of the patients but only 23% had it on the same day of admission; the rest (74%) were planned for later. Of note, patients (17%) who had unsuccessful CV in the first instance were more likely to have symptoms of heart failure ($p < 0.05$).

Conclusions: Results from the UK RHYTHM-AF study demonstrate that the majority of patients presenting to secondary care with AF have multiple associated co-morbidities, which may affect long-term complications. Cardioversion is attempted in over half of the patients with majority being planned for a future date.

Poster Board Number: 31

COMPARISON OF CLINICAL CHARACTERISTICS AND OUTCOMES AT 3-MONTHS OF ISCHEMIC STROKE WITH FIRST-EVER VS. KNOWN ATRIAL FIBRILLATION

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Background: Atrial fibrillation(AF) is the independent risk factor of ischemic stroke. The aims of this study were to compare the clinical characteristics and functional outcomes at 3 months of ischemic stroke with first-ever AF and with known AF.

Method: All consecutive patients with ischemic stroke, who admitted 2 tertiary hospitals from 2008/04 to 2010/10, were included in this study. All patients were presented within 7 days from symptom onset and had twelve-lead electrocardiogram (ECG) on admission. TIA patients were excluded. Age, Sex, initial NIHSS, and modified Rankin Scale(mRS) at 3 months were identified.

Results: Among 2117 patients included, 210 (9.9%) were first diagnosed with AF on ECG performed on admission and 202 (9.5%) were known to have AF. In patients with first-ever AF, male was 47.1% (vs. 49.5%, p=0.63), mean age was 74.9±10.4 (vs. 73.9±9.8, p=0.32), median initial NIHSS was 9 [interquartile range(IQR) 3-19] [vs. 9 (IQR 3-17), p=0.64], and the proportion of mRS≤2 was 44.3% (vs. 48.5%, p=0.39).

Conclusion: AF was present in 19.4% of the patients with acute ischemic stroke and half of them were first diagnosed. Clinical characteristics, such as age, sex, and initial NIHSS, and functional outcomes at 3 months were not significantly different between the patients with first-ever AF and those with known AF.

Poster Board Number: 32

CONTINUOUS STROKE UNIT ECG MONITORING IS BETTER THAN 24-H HOLTER ECG FOR DETECTION OF INTERMITTENT ATRIAL FIBRILLATION IN STROKE PATIENTS

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Background: Cardioembolism in intermittent atrial fibrillation (iAF) is a frequent cause of ischemic stroke (IS). Sensitive detection of iAF after stroke is crucial for adequate stroke prevention but the optimal diagnostic modality is unknown. We compared the yield of 24h-Holter ECG, the standard tool for iAF detection, with conventional and automatically analyzed continuous stroke unit ECG monitoring (CEM).

Methods: Consecutive patients with acute IS/TIA admitted to our stroke unit were prospectively enrolled. After a 12-channel-ECG on admission, all patients received a 24h-Holter-ECG and CEM. Additionally, ECG monitoring data underwent automated analysis (aCEM) using a dedicated software for iAF detection.

Results: 579 patients (median age 71, 59.8% male) fulfilled all predefined inclusion criteria (IS: 81.3%; TIA: 18.7%). Median stroke unit stay lasted 89.8h. ECG data for aCEM analysis were available for a median time of 64h. In total, 21.8% (126) of patients were found to suffer from any AF (12.6% sustained AF). Intermittent AF was diagnosed in 9.15% (53/126) by at least one modality on the stroke unit. Admission ECG discovered 16/53 (30.2%) of iAF patients. Admission ECG plus 24h-Holter ECG identified 31/53 (58.5%). CEM without automated ECG analysis was significantly more effective (40/53; 75.5%) than 24h-Holter ECG, but combining admission ECG and aCEM provided an even better detection rate (51/53; 96.2%; p=0.002). Sensitivity and specificity for detecting iAF automatically by aCEM were 88.7% and 95.1%, respectively. Interpretation Continuous ECG monitoring particularly when including automated ECG analysis can replace 24h-Holter ECG as standard procedure for evaluation for iAF on stroke units.

Funding: Apoplex Medical Technologies.

Poster Board Number: 33

EXCESSIVE SUPRAVENTRICULAR ACTIVITY ON 24H-HOLTER PREDICTS PAROXYSMAL ATRIAL FIBRILLATION IN PATIENTS WITH CEREBRAL ISCHEMIA PRESENTING IN SINUS RHYTHM

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Background: Excessive supraventricular ectopic activity (ESVEA), measured as atrial premature beats (APB) and longest supraventricular run on 24h-Holter-ECG (SV-run_{24h}) may improve prediction of paroxysmal atrial fibrillation (PAF) in patients with cerebral ischemia..

Methods: ESVEA was quantified in one 24h interval, which had to be free from PAF. For the present analysis, 64 patients (44 atrial fibrillation at baseline, 20 patients with limited evaluability for ESVEA) were excluded.

Results: PAF was detected in 21 of 215 patients of the analysis population. PAF was more prevalent in those with ESVEA above the median: 17.3 vs. 2.7% for APB > vs. ≤ 4/h (p< 0.001); 15.9 vs. 3.7% for SV-run_{24h} > vs. ≤ 5 beats (p=0.003). ESVEA differed between PAF and Non-PAF: APB median 17/h [IQR 9; 143] vs. 4/h [1; 15] and SV-run_{24h} 10 [7; 18] vs. 0 [0; 8] beats (both p< 0.001).

Both parameters discriminated moderately between PAF and Non-PAF (area under the ROC curve 0.751 and 0.730, respectively). In multivariate analysis, log(APB/h) (p=0.027) and log(SV-run_{24h}) (p=0.022) were independently predictive for the presence of PAF. 0% of patients with normal LAVI/a' and APB < =4/h, 5.6% of those with either abnormal LAVI/a' or APB >4/h, and 27.1% of those with both abnormal LAVI/a' and APB >4/h had PAF (p< 0.001).

Conclusions: PAF is ruled out in patients with normal LAVI/a' and APB < =4/h, while prevalence is high in those with LAVI/a' and APB >4/h.

Poster Board Number: 34

EVALUATION OF THE STAF SCORE FOR IDENTIFYING STROKE PATIENTS WITH PAROXYSMAL ATRIAL FIBRILLATION

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Background: Recently, the STAF (Score for Targeting Atrial Fibrillation) has been introduced to facilitate identification of patients with paroxysmal atrial fibrillation paroxysmal (AFIB). STAF includes four dichotomised pieces of clinical information and was found to have a sensitivity of 89 % and a specificity of 88 %. The aim of this study was to evaluate this score in a recent independent cohort of stroke patients.

Methods: The Find-AF observational trial is a prospective center study of consecutive patients with cerebral ischemia. 281 patients were included and 237 showed sinus rhythm (SR) on admission ECG. These patients underwent 7-day-Holter ECG for the detection of PAF.

Results: 220 patients were analysed and 28 (12.7 %) had PAF. Patients with PAF were significantly older and showed larger left atrial diameters and higher NIHSS scores, but vascular etiology was not different between PAF and sinus rhythm patients. There was no clear cut-off for age, but the percentage of PAF gradually increased from 5 % in patients < 60 years to 15 % in patients 76-80 years. The highest percentage was found in patients > 85 years (40 %). Mean STAF score was 5.7 in PAF and 4.4 in SR (p=0.003). ROC analysis revealed a sensitivity of 52 % and a specificity of 73 % (AUC = 0.689) at the recommended cut-off ≥ 5 for the STAF score.

Conclusion: We could not confirm the very promising test characteristics of the STAF score in an independent cohort.

Poster Board Number: 35

OPTIMISING THE EFFECTIVENESS OF ELECTIVE ELECTRICAL CARIOVERSION FOR ATRIAL FIBRILLATION AND ATRIAL FLUTTER

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Background and aims: Successful cardioversion for patients with atrial fibrillation (AF) and atrial flutter with the maintenance of sinus rhythm may obviate the need for lifelong stroke prophylaxis. We evaluated the effectiveness of an elective electrical cardioversion service and factors affecting its success in maintaining sinus rhythm.

Methods: A retrospective analysis was performed on 100 patients (84 with AF and 16 with atrial flutter; mean age 65 years) who underwent elective electrical cardioversion at a district general hospital, UK (January 2009 to June 2011). Data included patient demographics, echocardiogram findings, procedure complications and outcome by 6 months.

Results: Successful cardioversion was achieved in 89% of patients. By 6 months, 41% remained in sinus rhythm. Relapse for patients with co-morbidities were 60% for COPD, 61% for ischaemic heart disease, 55% for hypertension and 60% for stroke. Relapse rates for left atrial (LA) size were 49% for >3.0 cm, 52% for >4.0 cm and 71% for LA >5.0 cm. Relapse rates were 51% for normal LV function, 65% and 69% for mild and moderate LV systolic dysfunction (LVSD) respectively. There were no differences in outcome with mitral regurgitation, pulmonary artery pressure and right atrial size. Complications were experienced by 13% of patients including 7% bradyarrhythmias.

Conclusions: Failure to maintain sinus rhythm has relationships with cardiovascular co-morbidities and echocardiogram findings including increasing LVSD and LA size. Careful patient selection may improve the effectiveness of the procedure. Elective cardioversion is not without adverse events and patients should be fully informed of such complications.

Poster Board Number: 36

TYPE OF ATRIAL FIBRILLATION AND SHORT OUTCOME IN PATIENTS WITH ACUTE ISCHEMIC STROKE

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Background and Aim: We aimed to investigate the association between the type of atrial fibrillation (AF) and short term outcome in terms of stroke recurrence in patients with ischemic stroke and non-valvular AF.

Methods: All consecutive patients admitted to our stroke unit between 1993 and 2010 with acute ischemic stroke were included in the analysis. Patients were divided in 3 groups according to the type of AF (paroxysmal, persistent, and permanent). The endpoints were inhospital and 30-days stroke recurrence.

Results: Based on our inclusion criteria 811 patients with non-valvular AF were recruited. Mean age was 75.8 ± 9.4 years. Two hundred seventy seven (34.2%) patients had paroxysmal AF, 165 (20.3%) had persistent and 369 (45.5%) permanent AF. Inhospital stroke recurrence rate was low ranging from 1,1% in patients with paroxysmal AF to 2,4% in those with permanent AF, with no significant difference between the 3 study groups ($p=0,113$). On the contrary, 30-days stroke recurrence was significantly higher in patients with permanent AF compared to patients with paroxysmal AF ($p=0.022$) with rates that ranged from 5,7% to 1,8% respectively.

Conclusion: Short term outcome in stroke patients with AF is associated with the type of AF; patients with paroxysmal AF have lower rates of stroke recurrence.

Poster Board Number: 37

HYBRID SEQUENTIAL ABLATION FOR PERSISTENT ATRIAL FIBRILLATION. IS THIS THE WAY TO GO?

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Background and aims: Trans-catheter ablation of persistent Afib shows unsatisfactory results. Alternative approaches are needed. We aim to validate feasibility, safety and short term efficacy of sequential hybrid ablation for persistent atrial fibrillation.

Methods: Between April and November 2010, 7 patients (58±8.7y.o.) with long-standing AFib (54.1±31.9mo.) underwent closed-chest, video-assisted epicardial pulmonary veins isolation (PVI) with monopolar or bipolar radiofrequency (RF). Left appendage closure with nitinol clip was planned in patients receiving a bilateral approach. In postoperative day 3 we proceeded to trans-catheter antral PVI with cryoballoon and RF linear ablation. Electro-anatomical mapping and bidirectional block was assessed prior and after ablation. Follow-up was prospectively conducted with clinical evaluation and 24 hours Holter ECG at 3-6 and 9 months.

Results: There were no major complications nor deaths. At follow-up (8±2.9 mo.; 100% completed), 6 (85.7%) patients were in stable sinus rhythm and 1 (14.3) experienced paroxysmal symptomatic AFib. Two patients (28.6%) still needed anti-arrhythmic drugs.

Conclusions: Hybrid early sequential ablation for long-standing persistent Afib could be safely performed with preliminary high success-rate at early follow-up. Further studies on larger populations are required to confirm the long-term efficacy of the procedure.

Poster Board Number: 38

STUDY OF QUALITY OF LIFE AND ITS RELATION WITH MENTAL STATUS ON HEART TRANSPLANTATION RECIPIENTS

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Background and aims: Health related quality of life is a significant issue factor in chronic disease. Quality of life may be declined by prolonged disease and specific treatment modalities and by negative disabling effects on mental status. To examine the relation between health related quality of life and their influence on mental status (anxiety and depression) 50 subjects (23males, 27females) heart transplantation recipients and compare before and after heart transplantation.

Method: Present study is a cross-sectional and exploratory survey. Data collected by Demographic and The SF-36 (health related quality of life),BAI (Beck Anxiety Inventory) BDI (Beck Depression Inventory) questionnaires .Questionnaires were filled by researcher 3 weeks before the surgery and 6 months and one year after the operation one by one, then the collected information analyzed by spss-16.

Results: Findings show anxiety scores of the recipients before heart transplantation were significantly higher than and after heart transplantation subjects ($P < .05$). Recipients depression scores before heart transplantation were significantly higher (show more serious depression) than after heart transplantation ($P < .05$).The compare between before and after heart transplantation recipients scores show significantly lower physical functioning ($P < .001$), significantly greater physical limitation on roles ($P < .01$), and lower levels of general health($P < .01$).

Conclusion: Findings demonstrate significant difference between anxiety and depression recipients scores after heart transplantation and have lower anxiety and depression. This study approve that recipients have desirable issues with return to their work and social welfare function, have better well-being sense.

Poster Board Number: 39

FRONTAL CORTEX AND PLASMA ANGIOTENSINASE ACTIVITIES CORRELATE ASYMMETRICALLY IN CONTROL AND CAPTOPRIL TREATED SHR

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Background and aims: From Claude Bernard's work, we know there is a reciprocal connection between frontal cortex (FC) and cardiovascular function, which is functionally lateralized.

Our aim was to analyze the plasma aminopeptidase (AP) activities in control and captopril-treated spontaneously hypertensive rats (SHR) and to search for a possible relationship between these peripheral AP activities and those of both soluble (SOL) and membrane bound (MB) AP in the left and right FC.

Methods: Sixteen adult male SHR were divided in control (n=8) and captopril (n=8) treated group. Captopril was administered in drinking water for 4 weeks. Blood samples and the left and right frontal cortices were obtained. SOL and MB AP were measured fluorimetrically using arylamides as substrates.

Results: Captopril reduced SBP but no differences in plasma AP were observed between both groups. Nevertheless, there exist correlations between plasma and left or right FC AP. In control rat, plasma AP correlates significantly with the right FC whereas it correlates with the left FC in the captopril group. However, in both groups, the correlation is negative for SOL but positive for MB.

Conclusions: The present observation reveals a pattern of bilateral behavior between the nervous and cardiovascular systems. The homogeneity of the data excludes possible artefactual results. The inverted bilateral behavior after captopril treatment suggests a systematized lateralized neuroendocrine response, constitutive of a regular bilateral behavior, not yet specified.

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Poster Board Number: 40

**ANALYZE OF COMPENSATORY MECHANISMS OF DRAINAGE SYSTEM OF BRAIN:
ANTENATAL STUDY**

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Background and aims: Plasticity of the venous system of the fetal brain is of importance to maintaining of adequate blood circulation in conditions of intensive development of the cerebral hemispheres.

Methods: 110 specimens of head venous system of fetus from 16 to 38 weeks of gestation were investigated by various methods of injection, preparation, corrosion and stereomorphometry.

Results: The succession and peculiarity of development venous complex of skull base, which consists of the cavernous sinus, anterior and posterior inter-cavernous sinuses, superior and inferior petrosal sinuses, their connections with intra- and extracranial veins and venous plexuses during the fetal period of human development are established. The early fetal period of human development (16-28 weeks) is characterized with the intensive processes of growth, differentiation and magistralization of different links of the head venous system. Intensity of reduction process and new-formation of vessels during the late fetal period (29-38 weeks) determinates the direction of development of the venous drainage system by loose or main type and provides an anatomical basis for the compensatory possibility of the head venous system in adult.

Conclusions: Compensatory mechanisms of the venous outflow directed at the prevention of the brain compression in cases of congenital or traumatic occlusion of one or more venous channels and realized due to anatomical features of the fetal venous system of the head.

Poster Board Number: 41

ANTIPLATELET AGENTS DID NOT INCREASE THE RISK OF TISSUE-TYPE PLASMINOGEN ACTIVATOR INDUCED CEREBRAL HEMORRHAGE IN A MURINE STROKE MODEL

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Background and aims: Antiplatelet agent is one of the key drugs for prevention of cardiovascular diseases. However, administration of antiplatelet agent is known to increase the risk of bleeding events. In this study, we investigated the correlation between administration of antiplatelet agent and tissue-type plasminogen activator (tPA) induced cerebral hemorrhage using murine stroke model.

Methods: Mice (CB-17/1cr) were fed with aspirin (0.1% in diet), cilostazol (0.3% in diet) or normal diet for 7 days before induction of ischemia. Transient ischemia was induced by ligation of left middle cerebral artery for 90 minutes. tPA (10mg/kg) or same volume of saline was administered just before reperfusion. Hemorrhagic infarction was evaluated at 24 hours after induction of ischemia (N=8 in each group).

Results: Treatment with aspirin did not increase the risk or severity of cerebral hemorrhage after injection of tPA, though treatment with cilostazol significantly reduced the risk and severity of cerebral hemorrhage, compared with non-treated mice. Immunohistological analysis revealed that treatment with cilostazol suppressed disruption of the microvasculature in the ischemic area associated with reduced matrix metalloproteinase (MMP)-9 activity.

Conclusions: Our results showed that administration of aspirin has non-significant effects on the risk of tPA-induced cerebral hemorrhage. In contrast, administration of cilostazol reduced the risk via suppression of MMP-9 activity in microvasculature. These findings indicated therapeutic time window of thrombolytic therapy could be extendible in patients medicated with cilostazol, and antithrombotic treatment might be safely started with cilostazol soon after injection of tPA.

Poster Board Number: 42

THE PREDICTIVE VALUE OF PRO-BRAIN NATRIURETIC-PEPTIDE LEVELS TO DETERMINE THE PRESENCE AND SEVERITY OF CORONARY ARTERY DISEASE IN PATIENTS WITH POSITIVE/ INCONCLUSIVE EXERCISE STRESS TESTS

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Introduction: Cardiovascular disease (CVD) is one of the major causes of premature deaths worldwide. NT- pro- brain natriuretic peptide (NT-proBNP) is a cardiac neurohormone that is secreted in the cardiac ventricles in response to excessive stretching of heart muscle cells. Brain natriuretic peptide (BNP) is currently being used as a marker of left ventricular dysfunction but limitations are evident in patients with sepsis, volume overload, stroke etc.

Aims: To identify a possible value of NT- proBNP level which indicates CAD; to compare NT-proBNP levels with the number of diseased vessels.

Methods: Sixty patients were recruited and equally divided into two groups; Group A, the control group and Group B, the experimental group. After the EST, all patients were required to have a NT- proBNP blood test, a left and right coronary angiogram and a left ventriculogram.

Results: Results showed that post EST NT- proBNP levels, in both groups, increased in the presence of CAD. For the positive EST group, the area under the ROC curve was 0.975 which was highly statistically significantly different from the null hypothesis value of 0.5. For patients in the inconclusive EST group, the area under the ROC curve was 0.912 which was highly statistically significantly different from the null hypothesis value of 0.5.

Conclusion: Exercise stress testing in this regard, is relatively inaccurate at predicting CAD in patients with inconclusive ESTs, and the need for additional tools, such as NT-proBNP measurements post inconclusive EST is warranted in the determination of the presence of CAD.

Poster Board Number: 43

ELECTROACUPUNCTURE CONFERS NEUROPROTECTIVE EFFECTS BY INHIBITING ACTIVATION OF IONOTROPIC GLUTAMATE RECEPTORS AND AN APOPTOTIC SIGNALING PATHWAY IN FOCAL CEREBRAL ISCHEMIA IN RATS

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We investigated the molecular mechanisms underlying the neuroprotective effects of electroacupuncture (EA) to cerebral ischemia in a rat middle cerebral artery occlusion (MCAO) model. Bilateral 2 Hz EA stimulations (1 mA) at acupoints corresponding to Baihui (GV20) and Qihai (CV6) in men strongly reduced infarct volume and improved neurological outcome after stroke. When we focused on the glutamate-evoked excitotoxic injury with coupled pathways, N-methyl-D-aspartate receptor (NMDAR) NR2A and NR2B and α -amino-3-hydroxy-5-methyl-4-isoxazolepropionic acid receptor (AMPA) GluR2 subunit phosphorylation were significantly arrested by EA treatment in the parietal cortex of the brain. On the contrary, phosphatidylinositol-3 kinase (PI3K) and Akt phosphorylation markedly increased. Moreover, EA treatment significantly decreased the number of apoptotic cells identified by Hoechst 33342 and TUNEL staining. When we analyzed for proteins involved in neuronal apoptosis, EA treatment significantly reduced the expression of death receptor (DR) 5. But, higher expression of anti-apoptotic Bcl-2 and Bcl-X_L, and cIAP-1 and cIAP-2 were detected in EA-treated cerebral cortex. Activities of caspase-3, -8 and -9 in the ischemic cortex were also strongly inhibited by EA treatment. Treatment of MCAO rats with the selective PI3K/Akt pathway inhibitor LY-294002 revealed abrogated neuroprotective effects induced by EA. These results suggest that the neuroprotective effects of EA were associated with reduction of NMDAR and AMPAR phosphorylation and with inhibition of both death receptor and mitochondrial apoptotic pathway. The PI3K/Akt pathway may mainly contribute to EA-induced neuroprotection after stroke.

PROTECTION AGAINST MYOCARDIAL AND CEREBRAL INFARCTIONS THROUGH PRESERVATION OF VASCULAR INTEGRITY BY ANGIOPOIETIN-LIKE 4

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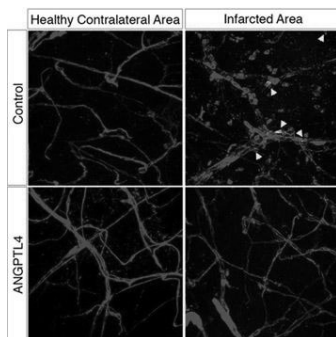
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Purpose: Preventing the no-reflow phenomenon in myocardial infarction (MI) and stroke represents a major medical need. Increased vascular permeability contributes to no-reflow. We therefore hypothesized that Angiopoietin-like protein 4 (ANGPTL4), a regulator of endothelial cell-cell junctions and vascular integrity, might modulate no-reflow and infarct size.

Methods and results: In a mouse model of myocardial ischemia-reperfusion, we showed that no-reflow and infarct size were increased in *angptl4*-deficient mice compared to control mice (19±1% vs 11±2%, p< 0.05 and 47±3% vs 36±3%, p< 0.01 respectively). Coronary vascular integrity was more severely disrupted in *angptl4*-deficient mice, as assessed by increased hemorrhages and edema. Intravenous injection of recombinant ANGPTL4 rescued the knockout phenotype in mice thereby demonstrating its therapeutic potential in reducing infarct size.

Similarly, in a mouse model of transient ischemic stroke, injection of ANGPTL4 led to a significant decrease in infarct size (51.5±4 mm³ in control group vs 27.5±5mm³ in ANGPTL4-treated group, p< 0,001). Behavioral tests were also significantly improved in treated mice. We further showed that ANGPTL4 prevented ischemia-induced disruption of adherens junction and vascular leakage. (Figure 1)

Conclusion: ANGPTL4 limits no-reflow and infarct size in experimental models of MI and stroke. We thus identified ANGPTL4 as a relevant target for vasculoprotection in these two common and debilitating ischemic diseases.



[Figure 1: ANGPTL4 maintains vascular integrity.]

Isolectin-B4 staining of blood vessels on mice-brain sections after transient stroke. ANGPTL4 treatment at reperfusion protects from vascular damages in the infarcted area and prevents the extravasation of fluorescent beads (arrows).

Poster Board Number: 45

"FASTFLOW" QUANTITATIVE MEASUREMENT OF BLOOD FLOW IN A VASCULAR NETWORK USING A WIDE-FIELD CAMERA

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Background: Measuring blood flow in vascularized tissues has important applications for biomedical imaging. Current techniques such as Laser Doppler flowmetry and Laser Speckle imaging require sophisticated equipment and have limited spatial resolution.

Aim: We present a simple and cheap method for imaging the blood flow with a wide-field camera, and a software suite called "Fastflow" that quantifies both the velocity of the red blood cells and the vessels diameter, yielding a precise estimation of the total blood flow inside each individual vessel.

Methods: We image a vascular network at high temporal resolution, without any contrast agent, the contrast being the absorption of green light by the erythrocytes, and their motion inside vessels becomes clearly visible.

Our user-friendly software performs correction of motion in the data, semi-automatic detection of vessels, and the estimation of erythrocyte velocity and vessel diameter. It also provides tools for displaying results such as estimated time courses in a single vessel, or the movie of the estimations in the whole vascular network.

Results: Estimation results are presented from recordings in the rat somatosensory cortex, and cat and monkey visual cortex. We detected blood flow responses to sensory stimulations as small as 5% changes, and could show specific differences of the responses between the arterial and venous compartments.

Conclusion: This new and simple method for measuring blood flow in a large number of vessels simultaneously should find a number of applications, such as neuro-vascular modeling, stroke studies, comparison between healthy and non-healthy tissues.

FIBRINOLYTIC SYSTEM DISORDERS IN ISCHEMIC STROKE PATIENTS

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Background and aims: Ischemic stroke is the third leading cause of mortality and morbidity in most countries in the world. This disease that causes long-term and severe disability is increasingly affecting younger populations producing great social and economic burden. There are therefore continuing efforts to discover biochemical markers that would enable a more reliable risk stratification. The aim of our study was to investigate the role of some fibrinolytic factors in the development of ischemic stroke.

Methods: This case-control study included 60 ischemic stroke patients and 30 age- and sex-matched healthy controls. In each patient the diagnosis of ischemic stroke had been verified by computerized tomography or magnetic resonance imaging. Euglobulin clot lysis time was measured manually in a water bath, according to Macfarlane and Pilling. Plasminogen measurements were performed using a chromogen substrate test on an automated coagulometer (ACL 200, IL, Italy). Plasma tissue-type plasminogen activator (t-PA) antigen and plasminogen activator inhibitor-1 (PAI-1) levels were measured by ELISA (Diagnostica Stago, France).

Results: Significantly longer euglobulin clot lysis time ($219,7 \pm 78,8$ min. vs $183,5 \pm 58,22$ min; $p=0,005$) and higher levels of PAI-1 ($48,5 \pm 17,1$ ng/ml vs $27,1 \pm 10,1$ ng/ml; $p=6,2 \times 10^{-11}$) and t-PA antigen ($11,1 \pm 7,14$ ng/ml vs $6,20 \pm 3,66$ ng/ml; $p=5,2 \times 10^{-5}$) were found in cases compared to controls. There were no significant differences in fibrinogen levels ($4,30 \pm 0,84$ g/l vs $4,09 \pm 0,64$ g/l; $p=0,23$) or plasminogen activity ($92,67 \pm 11,37\%$ vs $96,87 \pm 9,48\%$; $p=0,085$) between cases and controls.

Conclusions: There are important differences in the characteristics of the fibrinolytic mechanism in ischemic stroke patients compared to healthy population.

Poster Board Number: 47

A NEW METHODOLOGY TO TEST THE AUTONOMIC NERVOUS SYSTEM IN HIPERTENSIVE INDIVIDUALS

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Introduction: The Autonomic Nervous System (ANS) is considered an important factor in the genesis and development of Systemic Arterial Hypertension (SAH). The aim is to study the ANS in SAH through a methodology that uses heart rate (HR).

Methods: Included 43 subjects (12 hypertensive and 31 non-hypertensive) to check the arterial pressure (AP) and HR beat by beat. The measurement of the AP was done after 2.5 min in rest and 2.5 min after an orthostatic maneuver (OM) (Sudden stand up). Spurious values were excluded from temporal series for interpolation due to lack of HR periodicity. A sub sampling in 10Hz was executed and a filter that respects HR was applied. A spectral analysis in the temporal series was realized by the estimation of the median and quartile values. In order to check the statistical differences between the two groups and test the hypothesis Wilcoxon rank sum test was applied.

Results: The median powers in high frequency before and after the OM were lower in the non-hypertensive group, but had no statistical significance compared with hypertensive individuals (non-hypertensive: 42.69% and 32.39%; hypertensive: 46.91% and 33.99%). The median power in low frequency was higher in non-hypertensive individuals (Non-hypertensive: 57.30% and 67.60%; hypertensive 53.09% and 66%)Additionally, the difference in the autonomic response of non-hypertensive individuals was statistically significant ($p < 0,01$),while in hypertensive individuals was not.

Conclusions: This methodology shows a lower sympathetic activation in hypertensive individuals after the OM and demonstrates a potential to identify the autonomic dysfunction in this group.

EFFECTS OF ANESTHETIC AGENT PROPOFOL ON CARDIAC MECHANICS AND ENERGETICS

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Some agents for general anesthesia affect brain and cardiovascular functions by inhibiting excitatory functions of cellular receptors. Although propofol is commonly used for general anesthesia, its direct effects on left ventricular (LV) contractility and energetics remain unknown. Accordingly, we studied the effects of graded doses of intracoronary propofol on excised cross-circulated canine hearts. To evaluate the effects of propofol on cardiac mechanoenergetics independent of ventricular loading conditions, we used the framework of the Emax (a contractility index)-PVA (systolic pressure-volume area, a measure of total mechanical energy)- Vo_2 (myocardial oxygen consumption per beat) relationship. We measured LV pressure, volume, coronary flow, and arteriovenous oxygen content difference to calculate Emax, PVA, and Vo_2 . We obtained

- 1) the Vo_2 -PVA relationship of isovolumic contractions with varied LV volumes at a constant Emax,
- 2) the Vo_2 -PVA relationship with varied LV volumes at a constant intracoronary concentration of propofol, and
- 3) the Vo_2 -PVA relationship under increased intracoronary concentrations of either propofol or $CaCl_2$ at a constant LV volume to assess the cardiac mechanoenergetic effects of propofol.

We found that intracoronary propofol decreased Emax dose-dependently. Oxygen cost of PVA remained unchanged by propofol. Oxygen cost of Emax was virtually the same for propofol and Ca^{2+} . In conclusion, propofol showed a direct negative inotropic effect on the excised heart. At its clinical concentrations, decreases in contractility by propofol were relatively small. Propofol acts similarly to Ca^{2+} blockers or β -antagonists on the LV from the viewpoint of mechanoenergetics, i.e., negative inotropism without changing oxygen costs of Emax and PVA.

Poster Board Number: 49

CEREBRAL BLOOD FLOW IN NEONATAL MICE AND RATS WITH HYPOXIC-ISCHEMIC BRAIN INJURY

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Background and aims: Hypoxia and ischemia can occur systemically or locally (i.e. in the brain) during the perinatal period as a consequence of asphyxia. Children with severe neonatal hypoxic-ischemic encephalopathy (HIE) die or develop life-long neurological impairments such as cerebral palsy. A rodent model of neonatal HIE, the Rice-Vannucci model, combines permanent ligation of the unilateral carotid artery with exposure to systemic hypoxia for a couple of hours in 7-day-old rat pups and has been extensively used for studies on HIE. However, most data on the cerebrovascular physiologic factors were obtained from large animals. The temporal profiles of cerebral blood flow (CBF) after neonatal HIE are not well understood.

Methods: CB17 mouse and Wistar rat pups were exposed to the HI insult. Laser speckle imaging sequentially measured the two-dimensional cortical surface CBF before the hypoxic exposure and until 24 hr after the hypoxic exposure. Seven days after the HI insult, brain damage was morphologically assessed.

Results: The mean CBF on the ipsilateral hemisphere in mice decreased after carotid artery ligation. After the end of hypoxic insult (i.e., the reperfusion phase), the mean CBF level gradually rose and nearly attained its pre-surgery level by 9 h of reperfusion in mice and by 6 h of reperfusion in rats. It then decreased. The degree of reduced CBF during reperfusion was well correlated with the degree of later morphological brain damage.

Conclusions: The present study demonstrated the temporal changes in CBF in a mouse and a rat model of neonatal HIE.

INVERSE CORRELATION BETWEEN EFFICIENCY OF BAROREFLEX AND DYNAMIC CEREBRAL AUTOREGULATION IN PATIENTS WITH CAROTID ATHEROSCLEROTIC STENOSIS OR OCCLUSION

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Background and aims: Baroreflex is a homeostatic mechanism which dampens the rapid variations of arterial blood pressure (ABP). Dynamic cerebral autoregulation (DCA) is another homeostatic mechanism which allows the adaptation of cerebral blood flow to rapid changes in ABP. Whether there is an interaction between baroreflex and DCA is not clear. We aimed to assess this interaction in patients with carotid atherosclerotic stenosis or occlusion.

Methods: This is a retrospective analysis of consecutive patients with unilateral carotid atherosclerotic stenosis ($\geq 60\%$) or occlusion in whom assessment of baroreflex and DCA was performed. Beta-blockers and calcium inhibitors that may increase the QT, respiratory failure and stenosis or occlusion of the intracranial carotid artery or the middle cerebral artery were exclusion criteria.

Resting baroreflex sensitivity (BRS) was measured with the sequence method. DCA was assessed using the Mx autoregulatory index. Mx is a moving correlation coefficient between mean cerebral blood flow velocities and mean ABP. More positive value of Mx indicates worse autoregulation with a cut-off for normal Mx values at 0.3.

Results: Forty patients were included: M/F:31/9; mean age \pm -SD:65.7 \pm -10.64. 30 patients had stenosis and 10 patients had occlusion. DCA inversely correlated with BRS in univariate analysis (linear regression; $R=-0.462$; $p=0.003$) and in multivariate analysis after systematic adjustment for age, sex, degree of stenosis and symptomatic status of carotid stenosis or occlusion (logistic regression; $p=0.005$).

Conclusions: We found an inverse correlation between BRS and DCA in patients with carotid atherosclerosis. This could imply a compensation process between these two homeostatic mechanisms.

Poster Board Number: 51

BRAIN-HEART CONNECTION IN SEPSIS: ROLE OF AUTONOMIC SIGNALING AND NEURONAL NITRIC OXIDE SYNTHASE

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Background: Heart rate is controlled by the autonomic nervous system, and sepsis causes derangements in both. Our group has shown that abnormal heart rate characteristics (HRC) of decreased variability and transient decelerations often precede the diagnosis of sepsis in patients in the Neonatal Intensive Care Unit (NICU), and that continuously displaying HRC reduces mortality. We developed a mouse model and showed that bacterial and fungal sepsis activate the cholinergic nervous system leading to abnormal HRC. Neuronal nitric oxide synthase (nNOS) plays a role in vagus nerve-mediated HR deceleration but its role in abnormal HRC in sepsis has not been established.

Methods: In wild type and nNOS^{-/-} mice, radiotelemetry probes were surgically implanted to monitor ECG changes after administration of lipopolysaccharide (LPS). Atropine, atenolol, or choline were given to establish the role of cholinergic and adrenergic signaling in LPS-induced HRC changes.

Results: In wild type mice, i.p. or lung administration of LPS resulted in transient HR decelerations and decreased HR variability similar to HRC changes in septic neonates. Blockade of cholinergic and beta adrenergic receptors with methyl-atropine and atenolol terminated LPS-induced HRC changes. Desensitization to the HRC changes was noted on repeat exposure to LPS 1-3 days after initial exposure in WT mice. nNOS^{-/-} mice had attenuated LPS-induced HR decelerations but intact HR deceleration response to carbamylcholine.

Conclusions: LPS-induced HR decelerations are mediated at the presynaptic level by nNOS. Understanding how HRC changes reflect autonomic activation in sepsis will lead to better strategies for early sepsis detection in ICU patients.

Poster Board Number: 52

EVOLUTION OF THE LINK BETWEEN CARDIAC VAGAL COMPONENT OF RRI AND DELTA SLEEP EEG IN NORMAL AND PATHOLOGICAL CONDITIONS ACROSS THE NIGHT

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Background: Numerous cardiovascular events occur during the night. Interactions between heart and brain were largely studied in normal and pathological conditions. Heart rate decreased during deep sleep while cardiac vagal influence increased.

Aims: We studied the interaction between cardiac vagal influence (HF of RRI) and delta power band across night sleep in healthy men and in several pathologies.

Methods: Coherence analysis was applied between normalised HF of RRI and normalised delta power bands across the first 3 NREM-REM cycles in healthy young and middle-aged men, in apneic patients, in chronic primary insomniacs (CPI) and in patients suffering from major depressive disorder (MDD) vs healthy control groups. All participants were male and free of cardiac and psychotropic drugs. They did not suffer from other pathological conditions than those studied.

Results: Spectral RRI cardiac components of each group evolved across sleep stages in agreement with classical literature findings. All coherence variables were similar between healthy young and middle-aged men while severe SAHS altered all of them. In comparison to healthy controls, coherence coefficient and gain value were decreased in patients suffering from CPI and MDD, respectively.

Conclusions: Aging did not alter the link between cardiac vagal component of RRI and delta power across night sleep. Link strength, gain and delay between both signals were altered by severe SAHS even in the absence of cardiovascular pathology. Moreover, some alterations as link strength and delay for CPI or gain for MDD were observed in the relationship between cardiac vagal influence and delta sleep.

STABILITY AND CHANGING PREDOMINANCE OF THE LINK BETWEEN CARDIAC VAGAL INFLUENCE AND DELTA SLEEP EEG DURING THE NIGHT SLEEP IN HEALTHY MEN

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Background: Studies reported circadian rhythms in sleep and cardiac activity as well as probable strong link between cardiac and sleep controls. Cardiac vagal component of HRV is related to sleep delta power that is associated to deep sleep. Heart rate decrease during deep sleep while spectral cardiac vagal component is increased. Moreover, modifications in HF of HRV preceded modifications in sleep delta power.

Aims: We speculated that the HF-delta link remained unchanged across the night and that HF-delta predominance on other EEG power is changed before waking up.

Methods: Sleep ECG and EEG of healthy men without sleep, somatic or psychiatric disorders were recorded across 3 successive nights. Sleep recordings with 5 NREM-REM cycles at least were selected for sleep stages, spectral HRV and sleep EEG power bands computations. Coherence analysis was applied between HF and each EEG power band. Sleep, cardiac and coherence variables were compared between two periods: first and last 3 NREM-REM cycles.

Results: NREM, REM and awake durations were similar between both periods. Decreased deep sleep and increased heart rate were observed during the last night period. HR decreased during NREM. HRV spectral components were not different between periods and sleep stages. Coherence coefficients and phase shifts between HF and each sleep power band were similar between both night periods. HF-sigma and HF-alpha gains increased from first to last sleep cycles. HF-delta gain was unchanged ($p=.976$).

Conclusions: In contrast to extreme stability of HF-delta link across the night, HF-sigma interaction became predominant during last sleep cycles.

Poster Board Number: 54

IS PHYSICAL EXERCISE GOOD FOR THE BRAIN FUNCTION IN HYPERTENSION? A STUDY IN SPONTANEOUSLY HYPERTENSIVE RATS

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Background and aims: The neurotrophin Brain-Derived Neurotrophic Factor (BDNF) has been identified as the main translator of the positive effect of physical exercise (EX) on cognition. Whereas hypertension is associated with cognitive deficit, the effect of EX on cognition is poorly documented in hypertension. The present study investigates whether hypertension alters the effects of EX on cerebral BDNF levels.

Methods: The levels of the mature form of BDNF were measured by Western blotting in the cortex and hippocampus (two structures involved in cognition) from 10-week-old sedentary or exercised spontaneously hypertensive rats (SHR) and their normotensive controls Wistar Kyoto (WKY) rats. EX consisted in a treadmill walking (30 cm/s for 30-min) for 7 consecutive days. Blood pressure was measured before and after EX by the tail cuff method.

Results: In sedentary rats, cortical BDNF levels were 3-fold higher in SHR than in WKY rats, and hippocampal levels were 30% lower in SHR. In SHR, EX did not change the cortical levels but decreased by 40% the hippocampal levels of BDNF. The response to EX was quite different in WKY, in which EX dramatically increased the cortical levels but did not affect the levels in the hippocampus. Systolic and diastolic blood pressures were not changed by EX neither in SHR nor in WKY rats.

Conclusion: Essential hypertension negatively alters the neuroplastic response of the brain to EX, at least when EX is given at a dosage that does not reduce blood pressure.

Poster Board Number: 55

A DUAL PRONGED REGENERATIVE PROCESS IN STROKE ANIMALS AFTER HUMAN CEREBRAL ENDOTHELIAL CELL TRANSPLANTATION

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Background and aims: Stem cell transplantation has emerged as an experimental therapy for stroke. Although clinical trials have been initiated, the mechanism of action underlying this treatment remains elusive. In view of the neurodevelopmental process involving neurogenesis and vasculogenesis, we examined the fate differentiation of transplanted human cerebral endothelial cells (HEN6) in stroke animal model, using markers of neurogenesis and vasculogenesis as outcome parameters.

Methods: Ten-week old male rats underwent a one-hour middle cerebral artery occlusion, then after 3 hours randomly received stereotaxic transplantation of vehicle, 1, 2, or 4 million HEN6. Rats were euthanized 7 days post-reperfusion for immunohistochemistry using antibodies against neuronal, vascular, and specific human transplanted cell marker. 2,3,5-triphenyltetrazolium chloride staining was conducted in alternate sections to reveal infarct volume.

Results: Both neuronal and vascular markers were detected in the stroke core and peri-infarct area, and were closely adjacent to the transplanted cells. Some transplanted cells differentiated into microvascular phenotype and juxtaposed to the host vasculature. Neurogenic and vasculogenic expression markers were most pronounced in animals that received the four million cell dose, but the other doses also exhibited both regenerative processes, which were not observed in vehicle-infused stroke animals. Infarct volume in transplanted stroke animals was significantly lower than vehicle-infused stroke animals ($p < 0.05$).

Conclusions: We found robust neurogenesis and vasculogenesis following transplantation of HEN6 suggesting a dual pronged regenerative process in stroke animals.

Poster Board Number: 56

ASSOCIATION BETWEEN APOA1/APOB RATIO AND CAROTID INTIMA-MEDIA THICKNESS IN CORONARY ARTERY DISEASE

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Background: Previous studies show that smaller LDL size is associated with greater atherosclerotic risk. Plasma concentrations of ApoB is a measurement of the total number of LDL particles, and plasma concentrations of ApoA-1 is a measure of the HDL particle number. Carotid artery intima media thickness (IMT) is considered as a marker of atherosclerosis and in prediction of coronary artery disease.

Aim: To examine the association between mean carotid artery IMT and ApoB/ApoA-1 ratio and conventional lipids in CAD patients at baseline and at 1 year follow-up.

Methods: Blood pressure, anthropometric characteristics, traditional lipid profile, ApoA-1, Apo-B and carotid artery IMT were measured in 92 patients with CAD.

Results: Prevalence of CAD patients at 1 year follow-up with increased IMT was higher among subjects with an ApoA-1: Apo-B ratio > 1 compared to those with a ratio < 1 (36.8% vs 18.0%, $p < 0.05$). The ApoB/apoA-I ratio, LDL-c and diastolic blood pressure correlated with IMT. Other conventional lipids were not significantly correlated to IMT. A multivariate logistic regression analysis was conducted with IMT as the dependent variable and the apoB/apoA-I ratio, LDL-c, total cholesterol, HDL-c and blood pressure as independent variables. Only the apoB/apoA-I ratio (odds ratio 7.3, $P < 0.001$) and diastolic blood pressure (odds ratio 2.5, $p < 0.05$) were significantly associated with IMT.

Conclusions: There was a significant association between the apoB/apoA-I ratio and IMT in CAD patients. The association was independent of conventional lipids and may play an important role in assessment of atherosclerosis.

Poster Board Number: 57

BRAIN STATE IN PATIENTS AFTER ATHEROTHROMBIC AND CARDIOEMBOLIC STROKE

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Purpose: Pathogenetic heterogeneity of ischemic stroke served basis for comparative analysis of the state of hemodynamics, bioelectrical activity and metabolism of the brain in the patients who had cardio-embolic stroke (CES) and athero-thrombic (ATS) stroke.

Materials and methods: Altogether 150 elderly patients with ATS and 80 patients with CES were examined. USDS of head and neck vessels, EEG, MRI and ¹H MR spectroscopy of the brain were performed.

Results: The patients with left-sided CES versus ATS showed the deceleration of blood flow velocity in carotid and vertebro-basilar systems. In the patients with right-sided localisation of CES the blood flow rate was lower, in the comparison with patients with ATS, only in vessels of the intact carotid system.

In the patients with CES in right hemisphere, lower intensity was seen in the range of main EEG rhythm, alpha-1 and alpha-2, in damaged and intact hemispheres that indicated a decrease of functional activity of thalamic-cortical structures alpha-rhythm.

In the patients with left-hemispheric CES, the weight of intensity was higher in the range of slow rhythms that in some measure determined morpho-functional disturbances in the reticular-hippocampal system.

In the patients with right- and left-hemispheric CES, the N-acetylaspartate and GABA contents were decreased in the occipital and central regions of both hemispheres. With ATS changes of metabolism were found only in damaged hemisphere.

In summary, CES versus ATS patients display a more marked hypoperfusion of the brain, changes of metabolism and bioelectrical activity, especially in the cases of right-sided ischemic stroke localization.

CAN WE DIFFERENTIATE SOLID AND GASEOUS EMBOLI USING EMBOLIC SIGNAL PROPERTIES?

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Background and aims: The aim of this study was to analyse the signal properties of known sources of purely solid and gaseous emboli detected using transcranial Doppler ultrasound (TCD) *in-vivo* to determine if signal properties such as the ratio of peak-to-average embolus-to-blood ratio (PAR-EBR) or embolus velocity (EV) could differentiate solid from gaseous emboli. This may help to direct intervention to reduce the risk of associated brain injury.

Methods: Gaseous microembolic signals were analysed from 7 patients who tested positive during a screening test for a patent foramen ovale (PFO). Bilateral TCD monitoring of the middle cerebral artery (MCA) was performed while the patients were injected with agitated saline. The raw audio data was recorded onto an external laptop for subsequent analysis. TCD data recorded post-operatively from 3 patients after carotid endarterectomy (CEA) was also analysed to study the signal properties of solid emboli.

Results: 214 bubbles and 202 solid emboli were analysed. There was a marked difference in EV and PAR-EBR between solid and gaseous emboli. For microbubbles, setting a minimum threshold EV of 0.22cms⁻¹ and a maximum threshold of 2.15 for PAR-EBR (and vice versa for the solid emboli), a sensitivity of 90% and a specificity of 97% was achieved.

Conclusions: Our preliminary results show that using a threshold for EV and PAR-EBR may allow differentiation of gaseous and solid emboli. Future work will involve further validation of the cut-off values for EV and PAR and analysis of the signal shape and frequency modulation observed in embolic signals.

Poster Board Number: 59

CORTICAL AROUSAL AND CARDIOVASCULAR ACTIVITY DURING WORKING MEMORY TASKS IN TRAIT ANXIETY

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The aim of this study is to access cortical arousal and cardiovascular activity during cognitive performance in trait anxiety, as its main components. To do so, 563 female students performed State-Trait Anxiety Inventory (Spielberger, 1983), then subjects who had the highest and lowest points were selected as high anxiety (HA) (n=20) and low anxiety (LA) groups (n=20). Subjects in each group performed computerized 1-back working memory test during which their cardiovascular index and EEG pattern were recorded. Alpha oscillations were taken as cortical arousal and Heart Rate, Diastolic and Systolic blood pressure were taken as cardiovascular index. Using T test for independent samples, showed that high anxiety group had higher rates of alpha power during working memory performance, which means they experienced lower cortical arousal in comparison with low anxiety subjects. T test results revealed that high anxiety subjects showed more heart rate and systolic blood pressure increase during working memory performance, while there was no significant difference in diastolic blood pressure increase in two groups.

Poster Board Number: 60

DECREASED JUNCTOPHILIN 2 EXPRESSION INTERFERE WITH DIFFERENTIATION TOWARDS CARDIOGENESIS AND MITOCHONDRIA STATUS IN ESC-CMS

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Aims: Mutant mice lacking JP2 exhibits embryonic lethality, and the ability of Ca²⁺ flux to trigger sarcoplasmic reticulum (SR) Ca²⁺ release is reduced in cardiomyocytes from hypertrophic and failing hearts. Here we explore the role of Jp2 in cardiogenesis from embryonic stem (ES) cells and the possible links between JP2 gene knockdown and the influences on SR-mitochondria interaction in ES cell-derived cardiomyocytes (ESC-CMs).

Methods and results: JP2 expression was consistent with the beating embryoid bodies (EBs) in a time-dependent manner. Ryanodine receptor 2, the marker for SR and caveolin3, the marker for TTs, were expressed at the different stages of differentiation, which means JP2 may take a non-anchoring role between the organelles at the early cardiac development. Decreasing Jp2 by siRNA in ES cells did reduce gene expression towards cardiogenesis and beating activity in EBs, as well as abolish sarcomeric structures in ESC-CMs. Knockdown of Jp2 expression by acute siRNA in purified ESC-CMs lead to alter Ca²⁺ flux and intact mitochondria with ER.

Conclusion: JP2 gene controls the differentiation of ES cells into cardiac muscle in an extra non-anchor-dependent role. Reducing Jp2 expression by acute siRNA in ESC-CMs result in abnormal cellular Ca²⁺ homeostasis accompanied by injured mitochondrial status.

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Poster Board Number: 61

**FUNCTIONAL ENDOPLASMIC RETICULUM Ca^{2+} SIGNALING TAKES A ROLE IN
ACTIVITY-DEPENDENT NEURONAL NEUROGENESIS OF EMBRYONIC STEM CELLS**

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Activity-dependent neurogenesis via Ca^{2+} entry may be important for establishing neural network. However, it remains unclear whether intracellular Ca^{2+} mobilization is required in the activity-dependent neurogenesis. Here, we demonstrated that functional endoplasmic reticulum (ER) Ca^{2+} signaling influences the induction of the neuronal differentiation, synaptic vesicle recycling and axon outgrowth by application of sarco(endo)plasmic reticulum Ca^{2+} -ATPase (SERCA) inhibitor. The amplitudes of Ca^{2+} transient were significantly higher in differentiated neuronal cells than those in progenitor cells accompanied by the expression of ER Ca^{2+} handling proteins. Moreover, blocked of intracellular Ca^{2+} oscillation also reduced the phosphorylation of the Mitogen-Activated Protein Kinase (MAPK) family. Together, these results indicate that, ER Ca^{2+} signaling contributes to activity-dependent neurogenesis.

This work was supported by the National Natural Sciences Foundation of China (№. 30973600, № 81173135, № 90813026).

Poster Board Number: 62

PREDICTION OF HIV-1 INTEGRATION SITES IN HUMAN GENOME USING SUPPORT VECTOR MACHINE

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Background and aims: Retrovirus-based vectors are promising tools to perform a gene therapy because of their ability to provide an efficient and long-term transduction of foreign genes into several types of cells. The advantages rely on the virus coded enzyme integrase which inserts the virus cDNA into host genome. However, the non-specificity of retrovirus integrase has been a risk for application in gene therapy. Most research on the preference of retrovirus integration focus on establishing some relationship between the preference and some genome features, and few attempt to generate a predictive model was performed so far.

Methods: The most reliable sequences deposited in Genome Survey Sequences database were collected as training data. Tools like LibSVM, Matlab and some homemade programs were employed to perform the training and prediction based on Support Vector Machine theory.

Results: By establishing the prediction model of HIV-1 integration, we achieved a 80% accuracy of prediction (AUC 0.8678). And to achieve a decent prediction, 500 to 1000 integration sites is enough. The study of location to transcription start sites and the GC content nearby the predicted integration sites showed that the predicted ones have similar characteristics to the ones obtained in experiments. Besides the integration hot spots, we also predict some integration cold spots, which cannot be obtained using current experiments technique.

Conclusions: Support vector machine method gave a good prediction of integration sites. The model can overcome some obstacles in experiment and provide some useful information for the experiment design and verification.

UP-REGULATION OF ENDOGENOUS LEPTIN IMPROVES HUMAN MESENCHYMAL STEM CELL ANTI-APOPTOSIS ABILITY *IN VITRO*

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Background and aims: Bone marrow mesenchymal stem cells (BM-MSCs) have been employed as a therapeutic means, to cure multiple ischemic injuries, including acute myocardial infarction (AMI). However, the anemic condition inside the infarcted area provides an obstacle for survival. Hypoxia preconditioning can reduce apoptosis of BM-MSCs. This study explored the impact of a hypoxia related up-regulation of leptin in BM-MSC on anti-apoptosis.

Methods: Human bone marrow mononuclear cells (BMNCs) were isolated using Ficoll 400. BM-MSCs are separated by adherenting to the flask bottom. BM-MSCs were characterized by detecting cell surface antigens using flow cytometry. BM-MSCs were tested from passage 3~8 incubated under 0.5 % O₂, 37°C for 24 hours, and prolonged with a 2-hour re-oxygen. BM-MSCs cultured in normoxia condition were employed as the control group. Both cells were exposed to an oxygen, glucose and serum deprived (OGSD) condition for 36 hours. Endogenous expression of leptin was tested using western blot and ELISA. Leptin neutralizing antibody and signaling pathway inhibitors were used. Apoptosis was detected by nuclear staining using DAPI and TUNEL assay. The possible mechanism was assessed using flow cytometry of Annexin V/PI and PI/RNase. Associated signaling pathways were assayed by western blot.

Results: Endogenous expression of leptin was up-regulated in hypoxic pre-conditioned BM-MSCs. Leptin improves anti-apoptosis ability, since it was abolished by leptin neutralizing antibody. The anti-apoptosis ability was introduced by activating PI3K/Akt, Erk1/2, and JAK2/STAT3 pathways, respectively.

Conclusions: Hypoxia related up-regulation of endogenous leptin improves the anti-apoptosis ability of BM-MSCs through multiple survival associated signaling pathways.

MIRNAS ANALYSIS REVEALS NOVEL MOLECULAR DETERMINANTS IN THE PATHOGENESIS OF CONCAVALIN A-INDUCED MOUSE LIVER AND HEART INJURY

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Background and aims: Cysteinyl-leukotrienes (cys-LTs) play key roles in inflammatory and allergic diseases. The committed step in cys-LT biosynthesis is catalyzed by leukotriene C4 synthase (LTC4S) as well as microsomal glutathione S-transferase type 2 (MGST₂) and type 3 (MGST₃).

Methods: Here we aimed to investigate the potential role of cysLTs synthesis in concanavalin A (ConA)-induced mouse liver and heart injury dialed with LTC4S, MGST₂ and MGST₃ expression. Male Balb/c mice were administrated ConA (20 mg/kg) intravenously followed by collection of tissue and blood samples at 1 h, 2 h, 6 h, 8 h, respectively. Serum ALT, AST and liver and hart tissues using HE and immunohistological staining were subjected to evaluate the injury.

Results: ConA injection resulted in acute injury characterized by histological and serum enzymatic changes, and accompanied by dramatical increase of cysLTs generation, facilitating cytokines and MAPK expression. A strong increase of MGST₂, MGST₃ and LTC4S were observed in the liver and heart after approximately 2 h. These data suggest that LTC4S and cys-LTs may be involved in acute systemic inflammatory and allergic responses. The miRNAs analysis further showed the significant downregulation of miR-126 and the upregulation of miR-429. These miRNAs target molecules involved in the signal transduction, cytokine and chemokine-mediated signaling pathway and apoptosis.

Conclusions: In conclusion, we highlight the potential involvement of novel determinants (miRNAs and proteins) in the molecular pathogenesis of ConA-induced liver and heart injury. It might be considered as early predictors of inflammatory and allergic liver and heart diseases.

Poster Board Number: 65

RESTORATION OF FUNCTION USING AUTOLOGOUS STEM CELLS IN INDIAN PATIENTS WITH CHRONIC ISCHEMIC STROKE

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Background and aims: Stem cell transplantation promises to restore function in ischemic stroke. They are hypothesized to be feasible, multipotential and home in to the infarcted core. This ongoing study evaluates safety, feasibility and efficacy of autologous stem cells {expanded mesenchymal(MSC) and naïve mononuclear(MNC) } transplantation in patients with chronic ischemic stroke (CIS) using clinical scores and functional imaging.(fMRI and MRS).

Methods: Twelve CIS patients were recruited. The inclusion criteria were: 3 months - 2years of stroke onset, motor strength of hand muscles of at least >2; NIHSS of between 4 - 24, conscious and able to comprehend. Fugel meyer, barthel index and MRC grading was used for assessment. Motor task was performed in MRI scanner with paretic hand with self paced (minimum 0.5Hz) fist making of hands. Two patients were infused intravenously with 50 million MSC and four patients with 50 million MNC followed by 6 weeks of physiotherapy. Six control patients were administered physiotherapy only.

Results and discussion: The laboratory tests at 1,3,5 & 7th day were within normal limits in patients with stem cell therapy. There was an increased laterality index and larger number of cluster activation of Brodmann areas BA 4, BA 6 post stem cell infusion compared to controls (p< 0.05) indicating neural plasticity. The amplitude of NAA peaks were increased with stem cell infusion showing neuronal viability. No difference was observed between patients receiving MSC and MNC. Autologous stem cell infusion is a safe and feasible method of facilitating function in patients with CIS.

Poster Board Number: 66

BRAIN PACEMAKERS CHANGE BLOOD PRESSURE IN HUMANS

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Background: Deep brain stimulation (DBS) of the periaqueductal grey (PAG) is an effective treatment for chronic pain. Similarly DBS of the posterior hypothalamus (PH) can treat cluster headache. Both PAG and PH modulate autonomic function. Here we describe significant and sustained changes in blood pressure (BP) with PAG but not PH DBS.

Methods: Following DBS in 15 patients, stimulation parameters were manipulated and real-time BP was measured alongside heart rate and rate of change of BP (dP/dt). Postural changes in 11 patients were measured and baroreflex sensitivity calculated. 7 patients, 5 with PAG DBS and 2 with PH DBS, received ambulatory BP and heart rate monitoring for consecutive 24 hour periods with DBS on and off.

Results: Ventral PAG stimulation significantly reduced systolic blood pressure in 7 patients and dorsal stimulation increased systolic BP in 6 patients with analogous changes in diastolic blood pressure, pulse pressure, maximum dP/dt, but not R-R interval. Postural experiments revealed less postural drop in BP on standing with stimulation. In one patient, postural hypotension was reversed. Of 5 patients receiving PAG stimulation and ambulatory BP monitoring, 4 had a significant decrease in BP.

Conclusions: PAG DBS can alter BP and reverse orthostatic hypotension, probably due to increased sympathetic outflow and baroreflex sensitivity. BP changes with PAG DBS appear to be sustained and dependent upon the target within the target, dorsal positioning increasing and ventral locations decreasing BP. DBS is a potential treatment for disorders of BP.

Poster Board Number: 67

EARLY DIAGNOSTIC OF HEART REPOLARIZATION ABNORMALITIES IN CARDIOVASCULAR AUTONOMIC NEUROPATHY

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Background and aims: Cardiovascular autonomic neuropathy (CAN), which often presents with diabetes, cause ventricular repolarization abnormalities that predict higher risk for fatal cardiovascular events.

The aim of our study was to prove ventricular repolarization abnormalities with new parameters of ventricular repolarization: QT variability (QTV) and variability index (QTVI) for the first time in CAN with diabetes type 1 patients.

Methods: We did a prospective study: 11 diabetic patients type I with CAN, 12 diabetic patients type I without CAN and 33 healthy age matched volunteers participated in the study. We calculated QTV and QTVI from 35 channel high resolution ECG (HECG). The Mann-Whitney two-sample test and Kruskal-Wallis three sample test were used.

Results: QTV was significantly lower in the group with CAN patients comparing to the group with diabetic patients without CAN and to the control group. There was no important difference in QTV between the diabetic patients without CAN and the control group. QTVI was significantly higher in the group with CAN patients comparing to the control group and to the group with diabetic patients without CAN. QTVI was also significantly higher in the group with diabetic patients without CAN than in the control group.

Conclusion: This study confirmed ventricular repolarization abnormalities by using new parameters of ventricular repolarization QTV and QTVI for the first time in CAN with diabetes type 1 patients. With QTVI parameter we found ventricular repolarization abnormalities even in diabetic patients type I without CAN that could be caused by structural damage of myocardium.

Poster Board Number: 68

SIX-MONTH DYNAMICS OF COGNITIVE FUNCTIONS IN CORONARY HEART DISEASE PATIENTS WITH INTERNAL CAROTID ARTERY STENOSIS UNDERGONE ON-PUMP CORONARY BYPASS SURGERY

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Background: The impairment of cognitive functions is often present in patients with internal carotid artery (ICA) stenoses, but the details of this dysfunction have rarely been reported. The purpose of the study was to evaluate the dynamics of cognitive functions depending on the presence or absence of ICA stenoses in coronary heart disease (CHD) patients 6 months after coronary artery bypass grafting (CABG).

Methods: The study enrolled two groups of CHD males, 25 individuals without ICA stenoses and 20 patients with the disease. The mean age of patients was 55.1 ± 4.5 and 56.8 ± 5.51 years, respectively. Short-term memory (the 10 numbers memorizing test) and attention (the Burdon's test) were evaluated. ICA stenoses did not exceed 50%, bilateral lesions of the ICA were found in 15% of patients. All the studies were performed before and 6 months after CABG. Statistical processing of the data was done with the non-parametric Mann-Whitney's test.

Results: No development of focal neurological signs was observed in both groups after CABG. Six months after CABG the patients with ICA stenoses showed the worst results by the 10 numbers memorizing test ($p=0.04$) and the Burdon's test ($p=0.004$) compared to the patients without ICA stenoses.

Conclusions: The results showed that even the presence of $\leq 50\%$ ICA stenoses leads to worse postoperative dynamics of cognitive functions in patients undergoing on-pump CABG in contrast to patients without ICA lesions at 6 months follow-up. It has been assumed that the patients with $\leq 50\%$ ICA stenoses constitute a high-risk group for cerebral complications after CABG.

Poster Board Number: 69

SUBJECTIVE COGNITIVE IMPAIRMENT AFTER CARDIAC SURGERIES

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Background and aims: Postoperative cognitive decline (POCD) is a frequent complication after cardiac surgeries. On an objective level, POCD is substantiated by neuropsychological testing. Clinicians are confronted with subjective complaints about cognitive deficits mostly from close relatives of patients. The aim of the study was to assess cognitive failures, as seen by patients and their close relatives, on a quantitative level.

Methods: We interviewed 65 patients with a modified version of the self-assessment cognitive failure questionnaire (s-CFQ) and 50 close relatives (mostly spouses) with the CFQ-for-others version (f-CFQ) before and 3 months after aortic valve replacement. The questionnaires evaluate the frequency of failures in daily living related to memory, attention, action and perception.

Results: The s-CFQ did not differ between the baseline and post-operative assessment (baseline: mean 39.0, SD 12.1; post: mean 39.0, SD 14.0) ($t(64)=0.03$; $p=.97$). However, the assessment by others was clearly worse in the f-CFQ after surgery (baseline: mean 8.4, SD 4.4; post: mean 10.1, SD 6.2) ($t(49)=2.46$; $p=.017$).

Conclusion: POCD after on-pump cardiac surgeries is perceived by close relatives, like spouses, often. The result underlines that cognitive side-effects have a perceivable impact on daily living functions. Regarding such minimal cognitive impairment, assessment by others is more reliable than self-assessment.

Poster Board Number: 70

CHANGES IN THE STATE OF COGNITIVE FUNCTIONS IN PATIENTS UNDERGOING BILATERAL CAROTID ENDARTERECTOMY

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Purpose: To examine the state of cerebral hemodynamics and cognitive function in patients with total lesion carotid arteries who underwent carotid endarterectomy (CEA).

Methods: We examined 117 patients with varying degrees of chronic vascular - brain disease. All patients had bilateral hemodynamic significant stenosis of both carotid artery and various degrees of cognitive impairment. We determined of indicators of cognitive deficits on the scale MMSE, quantitative assessment of transcranial Doppler parameters (TDP).

Results: Before surgery, at patients MMSE score was the average score - $18,3 \pm 0,64$; after 3 months the first CEA - $22,2 \pm 0,78$. At 3 month after the second CEA MMSE score increased to $26,4 \pm 0,54$.

Before surgery, at patients in the study of TDP, the linear velocity of blood flow in the ACA was $42,14 \pm 3,6$ cm/sec, in the MCA - $54,1 \pm 2,3$ cm/sec, in the PCA - $50,8 \pm 1,2$ cm/sec. At 3 month after the second CEA velocity of blood flow in the ACA has increased to $62,4 \pm 2,1$ cm/sec in the MCA to $78,1 \pm 6,3$ cm/sec, PCA to $72,4 \pm 4,1$ cm/sec. Also, a decrease of peripheral vascular resistance as a result of the normalization of vascular tone in the brain.

Conclusions:

- 1 Severe bilateral stenosis of the carotid arteries leading to the development of chronic cerebral ischemia with severe cognitive impairment
2. Phased restoration of blood flow through CEA and neurometabolic therapy significantly reduces the risk of acute vascular - cerebral catastrophes.

Poster Board Number: 71

GENDER DIFFERENCES IN COGNITIVE PERFORMANCE EARLY AFTER CARDIAC SURGERY

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Background and aims: Part of a more general investigation, the present study aims to explore the influence of patient's gender on cognitive function after cardiac surgery.

Methods: A battery of neuropsychological tests (including parallel forms of instruments for the assessment of attention, memory, visuo-spatial and executive functions) has been administered (twice each time, in order to minimize the regression to mean effect) to non-depressive patients (f=35, m=31) in the weeks prior to and after a heart operation. Both simple and derived change scores and indexes have been computed based on pre- and post-surgery performances.

Results: No statistically significant differences between women and men have been observed in any of the neuropsychological tests employed, either in those uncovering a significant deterioration or in those showing no significant change after (as compared with before) the operation.

Conclusions: These data suggest that the cognitive dysfunction early after cardiac surgery is similar for both genders, despite the fact that its risk factors may vary in men and women.

Poster Board Number: 72

GENDER DIFFERENCES IN DEPRESSION AND ANXIETY SIMPTOMATOLOGY IN PATIENTS UNDERGOING CARDIAC SURGERY

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Background and aims: We investigate in the present study some suggestions that the frequency (and, perhaps, the level) of experienced depression and anxiety is different in men and women undergoing cardiac surgery.

Methods: Alongside biological parameters, classical (both, "subjective" and objective") measures of depression and anxiety symptomatology have been administered (twice each time, in order to minimize the regression to mean effect) to patients (f=57, m=63) in the weeks prior to and after a heart operation.

Results: No statistically significant differences between women and men have been observed in any of measures employed before surgery; however, men proved to have significantly higher levels of anxiety (but not depression) than women in the weeks after surgery. The anxiety but not the depression symptomatology decreased significantly after operation in both women and men.

Conclusions: These data suggest that the depression and anxiety symptomatology is high but quite similar in men and women undergoing cardiac surgery.

Poster Board Number: 73

A CASE REPORT ON TREATMENT OF ISCHEMIC HEART DISEASE WITH FARADARMANI

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Purpose: Given the high risk, costs and side effects of surgery, and possibility of relapse of Ischemic Heart Disease (IHD), *Faradarmani* could be regarded as an optimum complementary treatment. "*Faradarmani*", as a newly introduced Iranian complementary treatment, which is based on the theory of "Intelligent Bond" or "Common Consciousness of the Parts", can be considered in treating various kinds of diseases. The presented case attempts to investigate the effectiveness of *Faradarmani* on treating obstructed coronary arteries.

Methods: Patient is a 55-year-old female who suffered chronic chest pain in September 2008. Her physician advised SPECT and the patient was diagnosed with Ischemic Heart Disease (IHD). She immediately started "*Faradarmani*" on daily bases. During a *Faradarmani* session the patient is asked to close their eyes for at least five minutes and manage to dispel the distracting thoughts, and merely observe, impartially, the feelings and experience encountered during the therapy. The patient was required to do this procedure at least once a day. In summary; through *Faradarmani* the patient becomes connected to the Interuniversal Consciousness (network of awareness and consciousness encompassing the universe) via Faratherapist and undergoes the Scanning process; due to the nature of this connection, some information is conveyed and the defective parts are treated.

Results: 8 days after commencing *Faradarmani*, patient underwent skin angioplasty to remove obstruction of coronary arteries, however surprisingly no blockage was found. During this time the patient had stopped medication and only used *Faradarmani* connection.

Conclusion: The presented case shows effectiveness of *Faradarmani* on treatment of Ischemic Heart Disease. The patient has fully stopped medication and no sign of relapse is observed till this date which will be further clarified in the following follow ups.

Poster Board Number: 74

NEW IN REHABILITATION OF PATIENTS WITH CARDIO-EMBOLIC STROKE IN ARAL SEA REGION OF THE UZBEKISTAN

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Purpose: To examine the safety and efficiency of innovative technologies in rehabilitation of patients with cardio-embolic stroke.

Materials and methods: In this study included 127 patients, 71 (55, 9%) males and 56 (44.1%) women. The localization of the lesion:

1 - in the carotid basin in 87 (68.5%) cases,

2 - in the vertebro-basilar basin - in 40 (31%) cases.

Heart rhythm disturbance was detected among 61 (48%) patients, cardiac failure in 66 (52%) cases. Safety assessment of the results was done using the daily Holter monitoring and the modified Rankin scale. Effectiveness was evaluated on scale of NIHSS and Barthel index.

Results: Rehabilitation program for patients included the treatment position, the passive-active gymnastics, selective massage, as well as the latest innovative technologies for neuro-muscular stimulation of paretic limbs. Analysis of the study showed a positive dynamics in 107 (84.3%) cases. In 20 (15.7%) cases it was detected factors of cardiac decompensation in the form of the growth of dyspnea and edema of the lower extremities. According to Holter monitoring in 13 (10.2%) cases revealed transient episodes of painless myocardial ischemia with ventricular tachycardia,

in 2 (1.6%) cases - a brief episode of supraventricular tachycardia.

In assessing the effectiveness there was a significant reduction of stroke severity on a scale NIHSS and improvement of level of daily activities by Barthel scale ($p = 0.0035$).

Conclusions: Using the latest innovative technologies under the control of functional methods of investigation and dynamic monitoring of cardiologist, the rehabilitation is effective.

Poster Board Number: 75

STROKE AND ACUTE CORONARY SYNDROME. INCIDENCE IN A UNIT OF INTENSIVE CARDIAC CARE

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Background and aims: Embolic stroke often complicates the acute myocardial infarction, especially if previous or recent atrial fibrillation diagnosis exists. Incidence of stroke in patients admitted for acute coronary syndrome in a UCI, associated risk factors, mainly atrial fibrillation.

Methods: Retrospective observational study from January 2010 to June 2011. Diagnosed by rapidly progressive signs of focal brain disorder (stroke or transient ischemic attack); confirmation of the etiology by CT.

Results: 324 men, 404p. Average Age: 59,44 (male) and 66,84 (women). Frequency of FA 0.1% in under 50 years old (1p), 0.38% from 51 to 65 (1p), 4.5% from 66 to 80 (6p), and 8.7% over the age of 80 (2p). Studied FRCV: hypertension 55,67%, Dyslipidemia 45,84%, smoking 43,58%, obesity 26.70%, diabetes 26.20%, ischemic heart disease after 25.90%, prior LCA 4.87%, renal failure 2.82%, had peripheral arterial disease 6.15%, prior heart failure 2.56%, previous ICP 9,74%. Diagnosis; SCACEST 79,95% and SCASEST 20,05%. Killip on arrival: I (320p, 79%), II (44p, 11%), III (20p, 5%), IV (20p, 5%). Average stay: 9,08 days. The frequency of Embolic stroke was the 2.8% (11), dominated by transient ischemic accident recovered completely, except in a case of intracerebral hemorrhage with lethal outcome. We find a higher incidence in IAM's previous location.

Conclusions: The presence of embolic stroke in our sample is similar to the one described in the literature, as well as the Association of factors of vascular risk, with a predominance of hypertension, Dyslipidemia, smoking and diabetes. Likewise highlights the presence of atrial fibrillation.

Poster Board Number: 76

MICRORNAS THAT POTENTIALLY REGULATE BRAIN NATRIURETIC PEPTIDE AND TRUNCATED NEUROTROPHIC TYROSINE KINASE 3 SHOW OPPOSING TREND IN EXPRESSION IN CARDIOEMBOLIC STROKE

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Background and aims: Ischemic stroke constitutes about 80 percent of all stroke cases of which cardioembolic stroke forms one of the major sub-types. Blood microRNA profiles have shown potential applications as biomarkers in human ischemic stroke patients. In this study we investigate the blood microRNA profiles in patients who have been identified to have acute cardioembolic stroke.

Methodology: Total blood was collected from acute stroke patients from the University Malaya Medical Centre. Total RNA (+small RNA) extracted from blood was subjected to microarray using Exiqon miRCury chips. miRNA signal values were then processed using various bioinformatic software available for miRNA analysis.

Results: Brain natriuretic peptide (BNP) has been shown as a biomarker for cardioembolic stroke. Blood miRNA profiles from our study show that BNP regulator, miR-617 is downregulated in early stages of cardioembolic stroke. On the other hand, the brain enriched miR-128 and a negative regulator of truncated isoform of neurotrophic tyrosine kinase 3 (NTRK3) has been found to be highly upregulated. The highly upregulated brain enriched miRNA miR-128 could also prove useful as physiological regulator of cell survival following cardioembolic stroke.

Conclusion: These findings suggest that the differential expression of miR-617 and miR-128 may be used as additional biomarkers of cardioembolic stroke that correlate to the increase and decrease in level of BNP and NTRK3 respectively in cardioembolic stroke patients.

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Poster Board Number: 77

THE CARDIOEMBOLIC SOURCES FOR ISCHEMIC BRAIN DISEASE

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Introduction: Ischemic brain disease (IBD) represents unique clinical entity with various ethiological factors. Embolic mechanisms of development with thrombotic material of cardiac origin is the cause in 20-50% of the cases. The aim of the study was to determine the significance and sensitivity of transesophageal echocardiography (TEE) in detection of cardiac abnormalities which are considered to be the small risk source in patients with IBD in which the embolic mechanism of disease development was suspected.

Methods and results: We examined 60 patients with acute IBD, proved according to clinical and radiological criteria, of probably cardioembolic development mechanism and by transthoracic (TTE) and TEE performed by two examiners in order to exclude bias. Significance of differences in detection of cardiac abnormalities was determined by statistical calculations. In patients group examined by TEE mitral valve prolaps was detected in 19 patients (was detected in 14 cases when TTE was used). Atrial septal aneurism was detected in 8 patients by TEE and with only 2 positive finding when TTE was used. Spontaneous echo contrast was seen in 6 cases only by TEE method.

Conclusions: According to our results, we can conclude that TEE is significantly more sensitive diagnostic method for detection of small risk cardioembolic sources in development of IBD which is specially related to younger patients.

Poster Board Number: 78

THE INCIDENCE OF CEREBROVASCULAR EVENTS FOLLOWING CARDIAC CATHETERIZATION

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Background: We aimed to assess the real-life incidence, etiology, and risk factors of cardiac catheterization-related acute cerebrovascular events (CVEs).

Methods: All patients undergoing cardiac catheterization in our center are prospectively registered in a database, recording patient and procedural characteristics and in-hospital progress. A retrospective analysis assessing acute CVEs (transient ischemic attack- TIA, ischemic stroke-IS or intracerebral hemorrhage- ICH), in this population over 20 years was performed. CVEs occurring within 24 hours from procedure commencement were included. CT confirmation was obtained in all cases.

Results: 42,286 cardiac catheterizations were performed in 29,781 patients of which 12,437 (29.4%) were combined diagnostic and interventional studies (PCI). 47 CVEs (0.11 %) were reported. 38 patients suffered IS, six had TIAs and three ICH. IS were predominantly to the anterior circulation (27; right hemispheric 14, left hemispheric 13), while only 11 involved the posterior circulation. Three patients died during hospitalization: one with left occipital intracerebral and subarachnoid bleeding and two with massive posterior circulation infarction. 33/49 (67.3%) of the CVEs were patients undergoing PCI, such that the stroke risk for a diagnostic catheterization was 0.054% (16/29849) and 4 times greater for patients undergoing PCI (0.27%, 33/12437). The age range was 46-89 (median 72) years, 32/49 (65.3%) were males, with almost all patients having significant risk factors for coronary and cerebrovascular disease (hypertension 90%, hyperlipidemia 68%, diabetes 50% and smokers 27%).

Conclusions: CVEs following diagnostic cardiac catheterization are extremely rare but 4 fold higher following coronary interventions. The incidence of intracranial bleeding is negligible.

Poster Board Number: 79

STROKE CODE: EMERGENCY TRANSPORT TO A STROKE TREATMENT CENTER IN THE PROVINCE OF MURCIA, SPAIN

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Background and aims: Stroke is the second most common cause of death in Spain and is cause of long-term disability. In 2010 the region of Murcia established the Stroke Code, a system that allows fast identificati3n, notificaci3n and transport of patients with stroke to stroke units, to receive thrombolytic treatment.

Objectives:

- 1) Assess the stroke cases attended by the Emergency 061 service in Murcia.
- 2) Identify the first symptom that establishes the diagnosis.
- 3) Analyze the average transport time to the hospital.

Methods: Observational retrospective study of the 62 cases labeled as Stroke Code during 2010, their symptoms, and the time taken to transport the patients.

Results: 55% of the patients came from rural areas, 53,30% were men, average age was 65 years old, being motor symptoms the most common ones. Average transport time took from 27 minutes in the same city up to 83 minutes from the most distant locations.

Conclusions: Stroke is a very common clinical situation. Stroke Code system provides an opportunity to be given thrombolysis for acute ischaemic stroke to many patients, and outcomes in patients with acute ischemic stroke are likely to improve. Average transport time is still to high.

Poster Board Number: 80

NON-ST-ELEVATION ACUTE CORONARY SYNDROMES, ATRIAL FIBRILLATION AND STROKE: A DANGEROUS TRIO

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Background and aims: Several studies have evaluated the prognostic role of atrial fibrillation (AF) in ST-elevation (STE) Myocardial Infarction (MI) patients, but scarce data are available in Non-STE acute coronary syndromes (NSTEMI-ACS). Aim of our study was to evaluate clinical characteristics, stroke incidence and long-term outcome in patients who developed AF during NSTEMI-ACS.

Methods: We enrolled 1320 NSTEMI-ACS patients with Non-STEMI (NSTEMI) (55.9%) and Unstable Angina (44.1%), out of which 65 (4.9%) had AF. Long-term survival was compared with 477 NSTEMI-ACS patients who didn't develop AF (median follow-up 36 months).

Results: Patients who developed AF had NSTEMI in about 70%, hypertension in 78.6% and median age was 76.2 years. Mean left ventricular ejection fraction (LVEF) was 47.8%. In the subsequent 36 months we observed 24 deaths (83.3% among patients with AF longer than 6 hours). The occurrence of AF resulted a significant predictor of mortality, either at univariate analysis (Kaplan-Meier $p < 0,001$) and after adjustment for age, diabetes, LVEF and glomerular filtration rate (Cox:HR 2,78; $p=0.007$). Stroke at follow-up in NSTEMI-ACS developing AF occurred in 7/65 patients (10.8%).

Conclusions: The results of our study suggest that NSTEMI-ACS patients who develop AF are often older, with NSTEMI and a higher percentage of comorbidities. The occurrence of AF, when longer than 6 hours, represents an important negative prognostic factor and is associated with a higher incidence of stroke compared with that previously reported (from 3.7 to 4.6%). Our results suggest that the therapeutic management of these patients should be improved, in particular antithrombotic therapy during follow-up.

PERFORMANCE IN EXECUTIVE FUNCTION SEEMS TO IMPROVE FOLLOWING CAROTID ENDARTERECTOMY IN NEUROPSYCHOLOGICALLY IMPAIRED PATIENTS DUE TO CAROTID STENOSIS

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Background and aims: The possibility of amelioration in neurobehavioral condition following carotid endarterectomy is still a matter of debate. In an attempt to identify potential neuropsychological benefits of carotid endarterectomy in some subjects, the present study analyses the evolution post-/pre-surgery in a subgroup of patients showing significant deterioration of neurocognitive functioning due to carotid stenosis.

Methods: Using a comprehensive neuropsychological battery, we comparatively examined twice pre-surgery and approximately one, six, and twelve months post-surgery, the performance of equivalent (in respect to relevant psycho-demographical and clinical variables) several groups of non-depressive subjects: study subjects with symptomatic carotid artery disease of similar severity levels who were cognitively impaired and received (n=19) or refused to receive (n=16) carotid endarterectomy versus those who were cognitively not impaired and received (n=23) or refused to receive (n=21) the vascular surgical procedure, alongside surgical controls (who undergone percutaneous coronary stenting [n=20]) or lumbar disc hernia surgery [n=20]), and non-surgical controls from general population (n=21).

Results: The performance on executive functions proves to significantly ameliorate after- as compared with pre-surgery in impaired but not in unimpaired patients. No other significant differences between the relevant groups could be noticed regarding any of the explored neuropsychological parameters, despite the fact that the vascular intervention subjects consistently showed improvement in some of them.

Conclusions: These results suggest that a confined subgroup of patients with carotid stenosis may neuropsychologically benefit from carotid endarterectomy.

ACUTE STROKE AND SIZE OF THE LIPOPROTEINS IN PLASMA

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Background and aims: Atherogenic dyslipidaemia is the modifiable risk factor among patients with stroke. Lipid profile and size of lipoprotein particles among patients with acute stroke was measured.

Methods: 50 consecutive patients with acute ischaemic stroke (24 M, 26 W) 35-90 years (mean age 77.5 years±11.8SD), admitted to the acute-care department were followed-up. Biochemical parameters, including the complete lipid spectrum were evaluated, non- atherogenic lipoprotein fenotype A and atherogenic B, with Lipoprint LDL Quantimet- rix was used. Score of atherogenic risk was calculated as a rate of non-atherogenic to aterogenic plasma lipoproteins. Size of LDL-particles spectrum (LDL 1-7), before drug terapy starting were measured. Results were compared to controls of 93 healthy vo- lunteers.

Results: Three quarters of acute stroke patients had atherogenic lipid profile, with small-dense LDL particles. Results are seen on the figure.

	Chol	TAG	VLDL	LDL1,2	LDL 3-7	LDL	HDL	SAR
	mmol/l±SD							
controls	4.42	1.42	0.67	1.38	0.018	2.43	1.26	44.2
n=93	±0.81	±0.73	±0.21	±0.44	±0.018	±0.61	±0.31	±20.3
stroke	5.42	2.31	1.11	1.71	0.31	3.08	1.09	7.52
n=50	±1.12	±0.91	±0.34	±0.57	±0.23	±0.83	±0.32	±5.5
p<	0.0001	0.0001	0.0001	0.0003	0.0001	0.0001	0.001	0.001

[Figure 1]

Conclusions: Patients with acute stroke had aterogenic lipid profile, significantly higher plasma li- pids compared to the controls, high prevalence of atherogenic lipoprotein profile type B (small dense LDL 3-7). Thus, early hypolipidemic treatment in acute stroke can lead to the improvement in endothelial function and reduction of the cardiovascular risk.

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Poster Board Number: 83

FREQUENCY OF HEART DISEASE AMONG ACUTE STROKE PATIENTS EVALUATED WITHIN 2 HOURS OF SYMPTOM ONSET

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Background: Although heart disease is epidemiologically associated with stroke, its prevalence among acute stroke patients evaluated by emergency medical services (EMS) in the hyper-acute phase is unknown.

Methods: The NIH Field Administration of Stroke Therapy- Magnesium is a phase 3 randomized placebo-control study of intravenous magnesium vs. placebo initiated in the field less than 2 hours from symptom onset. Demographic variables and medical history was obtained by trained study nurses in the emergency department. Descriptive statistics are presented along with univariate analysis using chi-square for categorical and t-test for continuous variables.

Results: A total of 1119 consecutive patients had data for evaluation, mean age was 70 (SD 13) years, 40% were women, 23% Hispanic Ethnicity, 77% white race. Prevalence of vascular risk factors was high with 76% hypertension, 20% diabetes, 46% dyslipidemia and 16% smokers. Prevalence of heart disease was high and included atrial fibrillation (22%), coronary artery disease (20%), previous myocardial infraction (10%), valvular heart disease (16%) and coronary artery bypass (4%). 43% of hyperacute stroke patients had a history of heart disease at presentation. Patients with heart disease were older (age 74 v 66 p< 0.001), less likely to present with hemorrhagic stroke (13% v 34%, p< 0.001), more likely to be on antiplatelet (43% v 29%) and anticoagulation (20% v 2%).

Conclusions: Two out of five stroke patients presenting within 2 hours of onset had a history of heart disease. These patients were less likely to present with hemorrhagic stroke despite higher use of antiplatelet and anticoagulation.

MYOCARDIAL INFARCTION AFTER STROKE IN 500 PATIENTS IN REGIONAL HOSPITAL OF DURRES, ALBANIA

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Approximately 5-10% of patients with acute cerebral infarction have a myocardial infarction (M.I) at the same time or within a few days following stroke. The prognosis of patients with cerebral infarction is strongly influenced by the common coexistence of coronary artery disease. M.I is one of the leading cause of death in patients with cerebrovascular disease. When a patient with underlying cardiovascular disease has a stroke, the resultant elevation in sympathetic nervous stimulation could potentially precipitate myocardial ischemia. With the evidence that the cerebrovascular ischemia can cause cardiac arrhythmia and myocardial ischemia, it is recommended that stroke patients should be monitored for cardiac arrhythmia and that cardiac enzymes should be obtained on patients with new ECG abnormalities.

Methods: We have seen the cases with Myocardial Infarctions (M.I) in 500 patients after stroke from first hour till three years later (for years 2008-2011). The mean age of patients were 68,5 years old. In total 49 patients had a M.I (9.8%). The most of patients (n=39, 79,7%) were over 75 years old, 18 had atrial fibrillation, 19 had diabetes melitus, 22 had hypertension. 12 patients had M. I within three days after stroke, 8 others within 6 months after stroke, 10 patients one year later, and 23 patients had a M.I within two last years after stroke. 17 patients had a bad prognosis with their deaths, other still being alive.

Conclusion: There is a strong correlation between stroke and M.I especially in old patients, more than 75 old age and with risk factor as hypertension, atrial fibrillation and diabetes melitus.

Poster Board Number: 85

CEREBRAL AND CARDIAC ISCHEMIC EVENTS: TWO DANGEROUS FACES OF THROMBOPHYLIC DISORDERS

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Background: A 55-year-old diabetic man with previous ischemic stroke had in 2008 an inferior STEMI treated with thrombolysis and then PTCA with DES on RCA. One year later, for anterior STEMI he was submitted to PTCA with DES on LAD, D1 and D2, complicated by acute intrastent thrombosis treated with re-PTCA. On May 2011 another inferior STEMI occurred, treated as previous events. Coronary angiography showed also critical stenoses of LAD and, given the high thrombotic risk, the patient wasn't submitted to PTCA but refused CABG. The patient was so referred to our Center; thrombolytic assessment was performed which showed activated protein C resistance with elevated factor VIII levels and heterozygous factor V Leiden and low levels of free protein S. Myocardial scintigraphy resulted positive in the territory of LAD that was treated with PTCA and triple DES, without acute complications. Maximum platelet aggregation (MPA) with 10 micromoles adenosine diphosphate was 68% during clopidogrel 75 mg; MPA with arachidonic acid was 19% during aspirin 325 mg. Because of previous stroke, being prasugrel controindicated, we decided to double clopidogrel daily dosage and reduce aspirin (160 mg) to optimize therapy for at least 12 months after which considering long-term anticoagulation.

Conclusion: Patients developing an ischemic event, either cerebral or cardiac, especially in young age, should be submitted to thrombolytic evaluation. Moreover, in patients with history of multiple myocardial infarctions and intrastent thrombosis, CABG should be strongly advised or antiplatelet therapy should be optimized when surgery is refused and revascularization is needed.

Poster Board Number: 86

SAFETY AND USEFULNESS OF CAROTID ARTERY STENTING IN PATIENTS WITH CONONARY ARTERY DISEASE

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Background and aims: Carotid artery stenosis is one of the main causes of cerebral infarction. Nowadays, carotid artery stenting(CAS) and carotid endarterectomy(CEA) have been performed in these patients. However, patients with carotid artery stenosis often have coronary artery disease(CAD), too. Although, CEA for these patients is said to be associated with high complication rate such as myocardial infarction, safety and usefulness of CAS for these patients have been unknown. So, our aim was to make clear about the result of CAS for CAD patients.

Methods: Patients were consisted of 36(30 male). All patients have carotid artery stenosis and CAD. They all have been carried out CAS electively. We investigated about the rate of major adverse event (death, major stroke or myocardial infarction within 30days), minor stroke and appearance of ischemic heart attack.

Results: CAS was successful in all patients. Major adverse events have not completely seen(0.0%). Minor stroke was seen in only one case(2.8%). Ischemic heart attack was not seen(0.0%).

Conclusions: We found out that CAS in patients with CAD was very safe and useful.

Poster Board Number: 87

AUTONOMIC IMBALANCE IN PATIENTS WITH ISCHAEMIC STROKE AND CORONARY ARTERY DISEASE

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Background and aims: In the well-known context of heart rate variability alterations as a marker of risk in ischaemic heart disease, we tried to establish a correlation between autonomic imbalance and subsequent development of ischaemic stroke.

Methods: To this purpose we assessed a group of 600 consecutive patients (P) with acute myocardial infarction (AMI). The assessment was performed in the first 14 days after AMI, every 3 months in the first year and every 6 months in the following years. The mean follow-up period was 6 years.

Results: 82 P (13,6%) developed ischaemic stroke. In the stroke group 81,7% had overall autonomic imbalance and 63,4% had impaired vagal activity. The analyses were performed both in time domain and frequency domain. We excluded a possible impact on the final results due to diabetes mellitus because the incidence of this disease was identical in both groups.

Late autonomic dysfunction had a comparatively higher impact on neurologic outcome so that the early measurements can in practice be neglected. The highest relevance proved to have those performed after 3 months when the patients were haemodynamically stable. In addition recovery after stroke was followed by the improvement of measured data at 18 months.

Conclusion: RR variability proved to be an independent risk and prognostic factor in patients with ischaemic stroke.

CORONARY ARTERY DISEASE IN STROKE PATIENTS WITH SYMPTOMATIC ATHEROSCLEROTIC STENOSES: FINDINGS BASED ON CEREBRAL AND CORONARY ANGIOGRAPHIES

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Background: Several studies suggest that a high proportion of stroke patients with large artery atherosclerosis have coronary artery disease (CAD) showing abnormal results during provocative testing for myocardial ischemia. However, the provocative tests do not identify non-flow-limiting coronary plaques, which increase the risk of acute myocardial ischemia. We assessed the frequency of CAD and its associated factors in patients with symptomatic cerebral atherosclerotic stenosis using conventional angiography.

Methods: Coronary angiography was performed at the same time as cerebral angiography in 97 patients with atherosclerotic stenosis (defined as >50% narrowing of the luminal diameter). Patients with a history of previous CAD were excluded.

Results: We detected significant atherosclerotic lesions in 70 patients (72.2%). Of these 70 patients, 38 (54.3%) had one-vessel disease, 23 (32.9%) had two-vessel disease, and 9 (12.9%) had three-vessel disease. Potential vascular risk factors associated with CAD were hypertension (odds ratio [OR] 3.86, 95% confidence interval [CI] 1.21-12.28; p = 0.022), a high level of non-high density lipoprotein cholesterol (OR 3.20, 95% CI 1.05-9.75; p = 0.041), and combined extra- and intracranial atherosclerosis (OR 4.39, 95% CI 1.33-14.52; p = 0.015).

Conclusions: More than 70% of patients with symptomatic atherosclerotic stenosis in cervical or cerebral arteries showed newly diagnosed CAD. Hypertension, hyperlipidemia, and multiple atherosclerosis of combined extra- and intra-cranial arteries increased the risk of CAD in these patients.

THE RELATIONSHIPS BETWEEN LIPIDS AND BLOOD PRESSURE IN NORMOTENSIVE AND HYPERTENSIVE MALES AND FEMALES AS A RELIABLE INDICATOR OF ATHEROSCLEROSIS

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Background and aims: Hypertension and dyslipidaemia are capable of the deterioration in vessel wall inducing the atherosclerosis. Our purpose was to estimate the mutual integrations between lipids and systolic (S)/diastolic (D) blood pressure (BP) in order to apprehend the significance of a huge overlap between hemodynamic and lipids disorders in the occurrence of atherosclerotic changes in cardiovascular and cerebrovascular systems and an enhancement of the risk of acute events.

Methods: The sample had been gathered (EPOGH study, n=324).

Results: In the context of the applicability of theoretical doctrine, we identified among hypertensives the positive associations of 24-h SBP ($r=0.314$, $P=0.046$), day S/DBP with LDL-C and negative correlation of day DBP ($r=-0.306$, $P=0.046$) with HDL-C in males. Owing to adverse lipid incentives, amidst normotensives the positive associations of clinic S/DBP with TC, night S/DBP with TG, clinic DBP ($r=0.224$, $P=0.038$) with LDL-C in males, of clinic/home S/DBP with TC, clinic SBP ($r=0.206$, $P=0.030$), home S/DBP, 24-h/day SBP with TG, clinic/home S/DBP with LDL-C in females and negative correlations of 24-h/night SBP in males, of home DBP, 24-h S/DBP, day/night DBP in females with HDL-C were defined. In all normotensives the veritable positive associations of clinic S/DBP, home DBP with TC, clinic SBP, 24-h/night S/DBP with TG, clinic/home SBP, 24-h/day DBP with LDL-C and negative correlations of home/24-h/day/night S/DBP with HDL-C were detected.

Conclusions: In particular, our findings probably with higher analytical precision resolve the complexity of atherosclerosis establishment and are useful for the prevention strategy of stroke and cardiac incident.

Poster Board Number: 90

CARDIAC MOBILE CALCIFIED TUMORS AS EMBOLIC SOURCES IN END-STAGE RENAL FAILURE PATIENTS ON HEMODIALYSIS

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Background and aims: The cardiac calcified amorphous tumor (CAT) is very rare non-neoplastic cardiac mass and because there have been few reports, their etiology, clinical manifestations, and treatment are still vague. In the Framingham study, mitral annular calcification (MAC) is predictive of a doubling in the risk of stroke after adjustment for multiple risk factors. However, it is unclear whether the MAC itself is a factor that directly causes stroke or MAC is merely a marker of increased risk in association with other precursors. Pathological findings of CAT were examined.

Methods: Four left ventricular cardiac calcified amorphous tumors which were successfully treated surgically were examined. Two were mobile and other two were immobile.

Results: The patients had MAC and they were on hemodialysis. Two mobile tumors showed swinging motion and grew rapidly on echocardiography. As the intraoperative findings, they were fragile, and easily detached from its origin. The histological findings were thrombus with angiogenesis, fibrin and calcium deposition. Other two tumors were firmly attached to the ventricular wall and they showed ossification.

Conclusion: Cardiac mobile CAT may be one of possible "missing links" between MAC and stroke. Immediate anticoagulation and thrombolytic therapy should be started whenever it is detected. When a cardiac CAT exhibits rapid growth despite appropriate medical therapy, complete surgical resection should be considered. This tumor is speculated to be included a special entity of cardiac CATs. We propose the descriptive term of cardiac swinging calcified amorphous tumor: SCAT to describe a subgroup of cardiac CAT.

Poster Board Number: 91

CRYPTOGENIC STROKE AND UNDERLYING AF TRIAL (CRYSTAL AF): CURRENT STATUS AND CLINICAL SIGNIFICANCE TO PATIENTS, PHYSICIANS AND HOSPITALS

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The American and European stroke guidelines recommend that patients with cryptogenic stroke take platelet anti-aggregants for secondary prevention. However, when a stroke patient is found to have atrial fibrillation (AF), the guidelines recommend anticoagulation due to its superior efficacy. Asymptomatic paroxysmal AF may be an important underlying cause of stroke; it is possible that some strokes of unknown cause (Cryptogenic stroke, CS) are due to occult (undetected) AF. The CRYSTAL-AF study seeks to determine if long term monitoring by the Reveal XT implantable cardiac monitor is superior to routine care for detecting paroxysmal AF in patients with CS.

Design: CRYSTAL AF is a 1:1 randomized, prospective, multi-center trial of 450 patients at 60 sites in Europe and North America. Patients are eligible for inclusion after diagnosis of cryptogenic stroke, and are randomized to REVEAL-XT insertion, or routine care. Patients are followed for a minimum of 12 months.

Objectives: The primary endpoint is the time to first documented event of AF by 6 months of continuous rhythm monitoring, compared with routine surveillance, in subjects with a recent cryptogenic stroke without previous history of AF. The primary secondary objective is the time to first documented AF event by 12 months of continuous rhythm monitoring.

Current status: As of 12 October 2011, 316 patients were enrolled in 60 centers.

Study schedule: Data collection will be closed 12 months after enrollment of the last patient. The study enrolled the first patient on 17 June 2009 and a publication is expected in early 2013.

Poster Board Number: 92

THE ROLE OF TRANSCRANIAL DOPPLER IN DETECTION OF PATENT FORAMEN OVALE

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Introduction: Patent foramen ovale has been reported to be more frequently detected in cryptogenic stroke and migraine, with paradoxical embolism as the major pathogenetic mechanism. The standard procedure for detection of the patent foramen ovale is transesophageal echocardiography. Transcranial Doppler sonography with bubble test can also diagnose patent foramen ovale. In this study we compared the validity of these techniques in detection of patent foramen ovale.

Subjects and methods: The examinations were performed with 67 patients (27 with ischemic stroke, 4 with transient ischemic attack and 36 with migraine). Transcranial Doppler with bubble test is based on the possibility to detect air embolic signals in the middle cerebral artery after intravenous application of contrast. The protocol with injections of 10 mL agitated saline was applied. The sensitivity and the specificity of transcranial Doppler were calculated comparing to transesophageal echocardiography.

Results: The average age of these patients was 34.2 years. Patent foramen ovale was found in 13 (48.1%) patients with cryptogenic stroke, 2 (50%) with transient ischemic attack and 13 (36.1%) with migraine. Transcranial Doppler sonography showed 100% sensitivity and 85.7% specificity for prediction of right-to-left shunts proven by transesophageal contrast echocardiography. Positive predictive values was 0.91 and negative predictive values was 1.

Conclusions: Transcranial Doppler with bubble test is a reliable method for detection of patent foramen ovale. Moreover, it is cheaper and more comfortable than transesophageal echocardiography, and can detect not only cardiac but also extracardiac right-to-left shunt.

Poster Board Number: 93

ARTERIAL HYPERTENSION, MYOCARDIAL INFARCTION AND STROKE: RISK OF DEVELOPMENT AND PSYCHOSOCIAL FACTORS IN RUSSIA DURING 20 YEARS

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Objective: To evaluate an influence of personal anxiety on risk of development of arterial hypertension (AH), myocardial infarction (MI) and stroke in men aged 25-64. Study.

Design and methods: Within the framework of program WHO MONICA-MOPSY a representative sample of men 25-64 years old (1984, 1988, 1994 years) was examined. The total sample was 2149 persons. The period of supervision was 20 years. We counted as outcome all cases of AH, MI and stroke which had arisen for the first time. We used Spielberger's scale for estimation of personal anxiety (PA). Cox-proportional regression model was used for estimation of relative risk (RR).

Results: 58.7% men with developed MI had a high level of personal anxiety (HLA) and 41.3% an average level of anxiety (ALA); 72.2% men with developed stroke had HLA and 27.8% ALA, 42% men with developed AH had HLA. The relative risk of developed cardiovascular disease within 5 years in a group of men with HLA in comparison with a group of men with ALA was 2.5 times higher for MI and 6.4 times higher for stroke, 6.0 for AH. Within 10 years, RR of MI development increased 3.1 times, stroke 3.8 times, AH 5.0 times. Within 15 years, RR of MI development increased 3 times ($p < 0.01$), stroke -2.9 times. Within 20 years the tendency to RR decrease for development of MI (RR=2.7) and stroke (RR=1.6), AH (RR=1.4) was observed.

Conclusion: The data indicate that high level of personal anxiety may predict higher cardiovascular risk in middle-age men.

Poster Board Number: 94

DEPRESSION AND RISK OF CARDIOVASCULAR DISEASES AMONG MALES AGED 25-64 (WHO MONICA-PSYCHOSOCIAL)

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To study the influence of depression on risk of cardiovascular diseases development during 10 years in non-organized male population aged 25-64. Within the framework of the MONICA--psychosocial program a representative sample of 657 men 25-64 years old (1994 year) was examined. Depression was measured at baseline with the use of the MONICA--psychosocial Interview Depression scale. The incidence of new cases of AH, MI and stroke was revealed in the WHO "Registry MI" and "Registry stroke" 10-year follow-up. Cox is a proportional regression model that was used for estimation of RR. The proportion of depression in the cohort of men with AH was 28.9%, with MI--65.8% and of men with stroke 70.6%. The relative risk of development of AH, MI, stroke during the first five years of supervision in a group with the high level of depression as compared to those in whom depression was not observed was 6.7 times ($p < 0.01$), 2.26 times ($p < 0.05$), 6.4 times higher ($p < 0.01$), respectively. Within 10 years, the risk of development of cardiovascular diseases in men with high level of depression was: for AH--RR = 4.2; for MI--RR = 2.4; and stroke--RR = 5.2 ($p < 0.05$ comparing to those without it. Depression is a predictor of cardiovascular diseases in middle-aged men.

Poster Board Number: 95

CORTICAL SPOTS ON FLAIR IMAGES IN TIA WITHOUT CLEAR ETIOLOGY

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Background: Cortical spots on FLAIR could be frequently detected but have not been extensively researched in patients with TIA. We presumed that TIA without clear embolic sources could be associated with right-to-left shunt (RLS). Therefore, we sought to find the association between the presence of RLS and Cortical spots on FLAIR in patients with TIA without clear etiology and to compare the imaging findings of patients with and without RLS.

Methods: This was a retrospective study of TIA patients consecutively visited to our tertiary stroke center within 48 hours of TIA onset between October 2008 and February 2011. TIA patients without potential embolic sources despite a routine diagnostic work-up were assigned to cryptogenic TIA. The presence of RLS was examined by a TCD with an agitated saline test or TEE. Cortical spots were defined as small and round hyperintensity in the gyrus and cortical-subcortical junctions on FLAIR images, except deep white matter lesions.

Results: Cortical spots on FLAIR images were more frequently detected in patients with RLS than in those without (76.6 % versus 39.4 %). The numbers of cortical spots were significantly higher in patients with a moderate to large shunt than in those with a small or no shunt ($p=0.007$).

Conclusions: Our study demonstrated that there was a significant association between the presence of RLS and cortical spots on FLAIR images in patients with cryptogenic TIA. These results suggest that RLS may be one of the possible causes of cryptogenic TIA.

Poster Board Number: 96

PERCUTANEOUS PFO CLOSURE PERFORMED SELECTIVELY AND USING A DEFECT-SPECIFIC STRATEGY IS HIGHLY EFFECTIVE IN PREVENTING RECURRENT TIA/CVA

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Objective: To assess prospectively in a single center whether closure of only "guilty" PFOs and applying a defect-specific closure strategy would reduce substantially recurrent TIA/CVA.

Methods: 190 patients, 101F + 89M, 49 ± 12 (11-77) years old, referred for PFO closure due to 115 CVAs, 67 TIAs, 5 retinal artery occlusions, 2 systemic emboli and 1 decompression sickness. All underwent thorough investigation (TEE, TCD, Holter EKG, Brain CT/MRI, Carotid arteries + deep veins Doppler and Hypercoagulability profile) by a multidisciplinary team.

Results: PFO $\emptyset = 4 \pm 2.3$, stretched = 12 ± 4.2 mm. Inter-atrial septal aneurysm and prominent Eustachian valve were depicted in 75% and 54%, respectively. Diverse anatomical morphology: simple flap, long tunnel, fenestrated septum in 60%, 25% and 15%, respectively. Accordingly, 142 Amplatzer (31 ASD devices), 26 Occlutech, 11 StarFlex, 10 Helex, 9 Solysafe, 1 Cardia and 1 Premere devices were used. All successfully deployed on first attempt. Procedure/fluoroscopy time 21 ± 8 / 5 ± 2 min. One pericardial effusion resolved spontaneously. One late embolization to descending Aorta required surgery. Six small residual shunts, one referred to surgery and another occluded by a second device. During 80 ± 39 (2-161) months only 3 neurological events have reoccurred (0.45% recurrence/year).

Conclusions: Percutaneous PFO closure in carefully selected truly "paradoxical emboli" patients is beneficial and can be considered even prior to publication of the long awaited randomized studies. Since no single existing device fits all defects it is imperative to use them according to the specific defect characteristics.

ABSENCES AS LEADING SYMPTOMS FOR CARDIAC TUMOR

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A 66-year-old woman was admitted to the emergency room for an absence of more than 30 minutes. She had no history of neurological disorder or cardiovascular disease. A cerebral CT scan was run and revealed no abnormality. The EEG was normal as well. Further neurological examination did not show any anomaly. The patient was dismissed. A new episode of absence of a few minutes led the patient to the emergency room a second time. The cerebral IRM was normal. Nevertheless, she was put on Levetiracetam for a suspicion of epilepsy. As she presented a third absence, a cardiac investigation was planned. A transthoracic echocardiography revealed a 2x1.5 cm moving mass attached to the non-coronary leaflet. This observation was confirmed by a transesophageal echocardiography, thus leading to a diagnosis of fibroelastoma. The patient had a tumorectomy under cardiopulmonary bypass. Unfortunately the valve could not be preserved and the patient received a biological aortic valve prosthesis (21 mm). The intraoperative aspect and the histopathological examination validated the diagnosis of fibroelastoma. This case highlights that even in uncommon symptoms without neurological findings the heart should systematically be examined as an emboligenic source.

Poster Board Number: 98

CARDIAC MYXOMA: STROKE AND OTHER NON-NEUROLOGICAL MANIFESTATIONS

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Background and aims: Cardiac myxoma (CM) is an unusual cause of stroke but potentially curable. Cardiac and neurologic complications can be the initial presentation of atrial myxoma.

Methods: We retrospectively reviewed 40 consecutive patients with the pathologically confirmed diagnosis of cardiac myxoma at Bellvitge Hospital from 1996, through 2011. Information regarding clinical presentation (stroke, cardiac symptoms: dyspnea, syncope, angina; constitutional symptoms: fever, loss of weight and asthenia; peripheral emboli) was collected.

Results: Twenty-one of 40 patients (52.5%) presented with cardiac symptoms (CHF 38%, angina 23.8%). Eleven of 40 patients (27.5%) presented with stroke (72%) or TIA (27%). For five patients (12.5%) left atrial myxoma diagnosis was a serendipitous discovery, echocardiography or thoracic CT-scan was performed for another indication (hypertension, cardiomegaly, post-op knee surgery work-up). Three of 40 patients presented constitutional symptoms (7.5%). Five of 40 patients met criteria for Carney complex syndrome [02], NAME syndrome [02], and LAMB syndrome [01] (11%). Mean age was 57.95 (range, 23 - 85 years). There were 26 females and 14 males. Transthoracic and transesophageal echocardiogram showed left atrial myxoma except in one patient with a right atrial myxoma. One patient had documented cerebral pseudo-aneurysms of 2mm in diameter by angio-CT scan. One patient had multiple embolisms to upper extremities with punch biopsy showing lymphocyte infiltrate. One had documented retinal artery emboli by fluorescein angiography.

Conclusions: Cardiac and neurologic complications are associated with cardiac myxoma, when they occur, frequently presents with either CHF or stroke, respectively. Carney complex is an uncommon manifestation of myxoma.

Poster Board Number: 99

HIGH RATE OF MRI STROKE RECURRENCE IN CRYPTOGENIC TIA AND MINOR STROKE PATIENTS: A PROSPECTIVE IMAGING STUDY

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Background and aims: Cryptogenic stroke is common in patients with TIA/Minor stroke. We sought to determine radiographic event rates in patients with cryptogenic stroke in a TIA/minor stroke population.

Methods: Patients with TIA/Minor stroke (NIHSS ≤ 3) were prospectively enrolled and imaged within 24 hours of symptom onset as part of two cohorts. Patients were assessed clinically at 3 months to document any clinical recurrence and had a repeat MRI either at day 30 or at day 90. Stroke mechanism was categorized as cryptogenic after standard etiological workup was completed. Follow up imaging was assessed for any new lesions in comparison to baseline imaging.

Results: 380/844 (45%) patients had cryptogenic stroke. Of these cryptogenic patients, 215 had follow up imaging. Median age was 72 years and 61% were male. At 30 day MRI follow up, 5/76 (6.6%, 95%CI 2.2-15%) had new lesions, with 3 patients having lesions in a remote arterial distribution. At 90 day MRI follow up, 19/131 (14.5%: 9-22%) had new lesions, with 9/19 having remote infarcts. Clinical recurrence was seen in 10/215 (4.6%: 2.2-8.4%).

Conclusion: Cryptogenic TIA/Minor stroke has a high rate of silent radiographic recurrence with later imaging having a higher rate of recurrence suggesting ongoing disease. A large proportion of cryptogenic stroke will likely turn out to have a cardiac source and the use of MRI as a surrogate marker of disease activity is one potential way of assessing efficacy of the new anticoagulants in this population, with reduced sample size.

Poster Board Number: 100

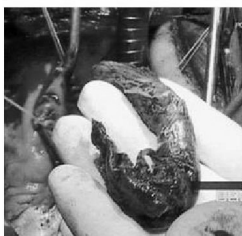
19-YEAR PATIENT'S PARADOXICAL EMBOLISM CAUSED BY A LARGE THROMBUS

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Goal: Describe the medical case of a paradoxical embolism of a 19-year patient with a large thrombus in the right atrium.

We report on a case of a patient who was admitted at our hospital with complaints of transient ischemic attacks, left-sided hemiparesis and heart pain. A month ago he had an injury: a partial Achilles tendon ruptures. He was delivered in a hospital within 30 minutes, when after physical exercise he felt a strong pain in the region of the heart, as well as shortness of breath, cyanosis of lips, transient aphasia and left-sided hemiparesis. According to the ECG the right bundle branch block was detected. The echocardiography revealed a significant enlargement of the right atrium - 4.5 cm (for reference the norm is 3.6). The systolic pulmonary artery pressure of 43 mm of mercury and a large movable thrombus (1.5 x 11 centimeters) in the right atrium were visualized. Besides, a free-floating thrombus was also visualized in a femoral vein.



Thrombus in the right atrium.

[large thrombus in the right atrium]

The patient was transferred to the Cardiac Surgery Clinic in Moscow. Next day an emergency right atrium thrombectomy surgery was performed. At the same time the femoral vein thrombectomy was also completed. Postoperative period progressed well.

An adequate and timely diagnosis was of primary importance to choose an appropriate treatment of the patient with the right atrium embolism. The successful surgery on right atrium thrombectomy combined with femoral vein thrombectomy provided the prevention of the embolism reoccurrence.

Poster Board Number: 101

WHICH IS THE REFERENCE TECHNIQUE FOR DETECT RIGHT-TO LEFT SHUNT IN ISCHEMIC STROKE PATIENTS?

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Background: Transoesophageal echocardiography (TEE) has been accepted as the reference diagnostic test given that it permits the direct visualisation of the size of the patent foramen ovale (PFO). However, it should be noted that TEE has certain limitations in the detection of right-to-left shunt (RLSH). TEE is difficult to perform for patients with stroke and swallowing difficulties. We report an acute ischemic stroke patient with TEE-negative RLSH that was detected through transcranial Doppler (TCD).

Case report: A fifty eight-year-old man with a history of hypertension was admitted to our hospital. He complained dysarthria for 12 hours. Diffusion-weighted MRI showed acute infarction on left internal capsule. MR angiography finding was normal. Aspirin was prescribed because we considered small vessel occlusion as stroke mechanism. However, TEE showed multiple fenestrated atrial septal aneurysm without RLSH. We made attempt to detect RLSH through TCD microbubble test. During normal breathing, there were 6-7 microbubble signals in both MCAs. During a Valsalva maneuver, large amount of microbubble “curtain” was observed. The patient’s stroke mechanism was considered as undetermined cause (2 or more causes). We changed medication to warfarin for stroke prevention and cardiac surgery is under consideration.

Conclusion: TCD microbubble test is useful for detecting the RLSH through PFO, although TEE evaluation do not reveal RLSH. Identifying at-risk patients of recurrent stroke through extensive work-up is important, especially for young-age stroke patients.

PARADOXICAL EMBOLISM AND PATENT FORAMEN OVALE ARE AS A REASON FOR DEVELOPMENT CARDIAC ISCHEMIC STROKE FOR THE YOUNG AGE PERSONS WITH CONNECTIVE TISSUE DYSPLASIA

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Background and aim: Cardioembolic stroke(CES), paradoxical embolism(PE) were selected, which is associated with the patent foramen ovale(PFO) at the young age persons. For the implementation of PE requires the right-left shunt, due to atrial septal defect(ASD), and embols in the venous system.

Methods: clinical-neurological examination, except of the Systemic Disease, led ECG, holter ECG, transthoracic echocardiography(TT-echoCG), transcranial ultrasound doplerography, duplex scanning, MRI).

Result: Of the 312 patients with CES(aged 18-75), who were admitted to a Clinic in the period 2000-2011, we selected 25 patients(8%) (aged 18-47; women-16, men-9), who suffered of stroke, which were associated with a PE. Hemodynamically clinical significant PFO(2.3-3.5mm) -18 people(72%), and PFO(1,5-2,2mm) - 17(68%) were educed by TT-echoCG. The 17 persons(68%) had CTD (asthenic body, hypermobile arthral syndrome, scoliosis, myopia, flat feet); a varicose veins - 10(40%), thrombophlebitis - 5(20%). Provoked factors were physical activities with increase abdominal pressure - 17(68%), and reception of hormonal contraceptives - 5(20%).

The stroke was confirmed by ST-scan -14(56%); MRI -14(56%). In a acute period CES was appointed by Sulodexide 600LU intravenous, then in capsules, and Citicolinum 2000mgs intravenous. During the rehabilitation period Warfarin or Cardiomagnil were prescribed. Three patients(12%) with hemodynamically non-clinical significant PFO were aimed at the prompt intervention for its closing. Necessarily there must be limitation of physical activity, adjusting of regulation of digestive tract.

Conclusions: The combination of exogenous and endogenous factors in various combinations can result in loss of compensatory mechanisms of organism, which will promote to the formation of a PE.

Poster Board Number: 103

TAKOTSUBO CARDIOMYOPATHY AND CEREBROVASCULAR DISEASE; THE CHICKEN OR THE EGG?

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Background: Takotsubo- or stress-cardiomyopathy is a newly recognized mimicker of acute coronary syndrome affecting mostly postmenopausal women. The left ventricular dysfunction is reversible and the prognosis is excellent.

We present two cases of presumed Takotsubo cardiomyopathy in association with acute cerebral vascular disease.

Case 1: 50 year-old woman without vascular risk factors presented with imbalance. History of bipolar disorder; newlywed and under financial stressors. On exam spastic dysarthria, bi-facial palsies, right hemiparesis and four-extremity ataxia. MRI brain multiple acute ischemic infarcts involving the posterior circulation. MRA occlusion of the basilar artery. Troponin 0.07 and ECG sinus tachycardia. Transthoracic echocardiogram (TTE) basal/mid-ventricular variant stress-induced cardiomyopathy, ejection fraction (EF) of 46%. Stroke work-up otherwise negative.

Case 2: 77 year-old woman with history of hypertension and smoking developed transient left-sided hemiparesis while in the recovery area after elective exploratory laparotomy for adhesiolysis. Symptom duration 5 minutes.

MRI brain no acute ischemia, MRA head and neck unremarkable. Troponin 0.15. ECG ST depression in lateral leads. TTE EF 38% and mid-ventricular variant stress-induced cardiomyopathy. She was treated with beta-blockers, ACE-inhibitors, and ASA. Five weeks later EF was 67% without wall motion abnormalities. Nuclear stress test negative.

Discussion: Both cases were associated with basal/mid-ventricular variants of Takotsubo cardiomyopathy. The risk of intracardiac thrombus formation from basal/mid-ventricular hypokinesis is lower than the risk related to apical hypokinesis. This argues against a cardioembolic mechanism as the stroke/TIA etiology and suggests cardiomyopathy might be the consequence of stroke-related stress.

TRANSFORMING GROWTH FACTOR-BETA1 (TGF-BETA) GENE POLYMORPHISMS: IMPLICATION IN TGF-BETA SERUM LEVELS AND SUSCEPTIBILITY TO ACUTE MYOCARDIAL INFARCTION

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Background and aims: Transforming growth factor beta-1 (TGF- β 1) gene plays an important role in acute myocardial infarction (AMI). Therefore, we evaluated the influence of TGF- β 1 polymorphisms on the onset and progression of AMI in Iranian patients comparing with healthy individuals.

Methods: Genomic DNA and peripheral blood mononuclear cells of 900 enrolled patients with AMI and 900 control subjects were extracted. The -509 C/T and 868T/C TGF- β 1 polymorphisms were detected. The mRNA expression and serum levels of TGF- β 1 were analyzed.

Results: The frequency of 'T' allele in -509 C/T and 'C' allele in 868T/C polymorphisms were significantly higher in the patients than controls ($P < 0.001$). Logistic regression analysis revealed that these alleles of TGF- β 1 might be independent risk factors for developing AMI. There were significant differences in circulating levels of TGF- β 1 in the patients than in controls (34.96 ± 1.74 via 30.46 ± 1.46 respectively, $P < 0.001$) which these concentrations are associated with its gene polymorphism. Increased serum levels were found in the patients with 'T' allele in -509 C/T and 'C' allele in 868T/C than subjects with 'C' and 'T' alleles, respectively ($P < 0.001$). The mRNA expression levels of TGF- β 1 were significantly higher in the patient serums compared with controls (TGF- β 1/ β -actin, 2.86 ± 1.02 via 1.28 ± 0.89 , $P < 0.001$).

Conclusions: Our results confirmed the association between the TGF- β 1 polymorphisms and risk of AMI which suggest that genetic polymorphisms in TGF- β 1 might be helpful for determining susceptibility to AMI in Iranian patients. In addition, susceptibility to AMI might be related to TGF- β 1 gene expression which affects its serum levels.

Poster Board Number: 105

A META-ANALYSIS TO DETERMINE THE EFFECT OF ANTIPLATELET AGENTS ON THE PREVALENCE OF CEREBRAL MICROBLEEDS IN PATIENTS WITH SYMPTOMATIC STROKE

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Background and aims: Previous studies have given conflicting results as to whether antiplatelet agents increase the prevalence of cerebral microbleeds in patients who develop symptomatic haemorrhagic or ischaemic strokes. The aim of the meta-analysis was to determine the effect of antiplatelet agents on the prevalence of cerebral microbleeds.

Methods: Study inclusion criteria were case control studies or nested case control studies in patients with haemorrhagic or ischaemic stroke where the presence or absence of microbleeds was compared in patients with and without prior use of antiplatelet agents. Exclusion criteria: unpublished data. A Medline search via the Pubmed interface was performed using the search terms:- *cerebral microbleeds and stroke; cerebral microbleeds and antithrombotic agents; cerebral microbleeds and risk factors*. Cross referencing was also performed.

Results: Sixty-one abstracts were reviewed for relevance. Seven studies were identified with appropriate extractable data. Cross referencing produced another six studies. In summary eight studies provided extractable data for the intracerebral haemorrhage subgroup and eight studies provided extractable data for the ischaemic subgroup. Significant heterogeneity was present for both the haemorrhagic subgroup ($I^2 = 47.557$) and the ischaemic subgroup ($I^2 = 69.568$) suggesting that the random effects model is the preferred model. For the haemorrhagic subgroup the common OR = 1.157 (95% CI: 0.666 - 2.011). For the ischaemic subgroup the common OR = 1.246 (95% CI: 0.711 - 2.184).

Conclusions: The results of this meta-analysis indicates that the use of antiplatelet agents does not increase the prevalence of cerebral microbleeds in patients with symptomatic stroke.

Poster Board Number: 106

PHASE-CONTRAST MICROSCOPY OF MEMBRANE-DERIVED MICROPARTICLES AS AN EXPRESS METHOD FOR ASSESSING ENDOTHELIAL DYSFUNCTION IN PATIENTS WITH CARDIOVASCULAR AND CEREBROVASCULAR PATHOLOGY

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The purpose of this study was to evaluate the reliability of phase-contrast microscopy in detecting the membrane-derived microparticles in the blood for diagnosis a severity of condition in the patients with cardiovascular diseases. Study included 430 patients of both genders with arterial hypertension and angina, 60 patients with arterial hypertension and stroke and 30 good health patients. Some patients received Trimetazidine MR in addition to basic cardiovascular therapy. Total amount of circulating membrane microparticles, numbers of CD62E positive and annexin V positive membrane microparticles were determined. Patients with progressive angina and stroke had high level of investigated parameters in comparison to stabile angina and good health patients. Under ACE inhibitor and neurological treatment of stroke a number of membrane microparticles decreased from 5800.1 ± 5.8 to 705.8 ± 8.5 ($p < .01$). Trimetazidine reduced an amount of circulating microparticles in patients with progressive angina from 2670.3 ± 3.7 to 656.6 ± 3.7 ($p < .05$). Good health patients had 200.0 ± 1.4 of membrane microparticles in 1 μ l of peripheral blood.

DO DENTAL PATIENTS NEED ROUTINE INTERRUPTION OF ANTITHROMBOTIC THERAPY?

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Background: The management of patients who require interruption of anticoagulation or antiplatelet drugs because of surgical or other procedure is a common and challenging problem. We have experienced a case of fatal stroke caused during discontinuance of oral anticoagulant for a dental procedure.

Case report: A Sixty one-year-old man with a history of atrial fibrillation and previous cerebral infarction was admitted to our hospital. He had been on warfarin medication and has stopped 6 days ago due to dental prosthesis. He complained dysarthria and right sided weakness. A brain CT on 80 minutes after the symptom onset showed no hemorrhage. . Intravenous t-PA was started. Diffusion-weighted MRI showed no definite acute infarction. However, there was the severe stenosis of top of the basilar artery on MRA. He had a sudden mental change to comatose with abnormal extension, the light reflex was negative with dilated pupils, ocular cephalic reflex was negative. The conventional angiography showed occlusion of the right posterior cerebral artery. As we made no attempt to reopen the artery, the thrombus must have been migrated spontaneously. After 3 days, he had no focal neurologic deficit. He is still on oral anticoagulation with well-controlled PT INR.

Conclusion: Clinical guidelines do not support the routine discontinuance of antithrombotic treatment. The thrombotic complication is so severe that the patient can be even fatal. Identifying at-risk patients of bleeding or thrombotic complication is important. To determine which patient to maintain or stop antithrombotic medication should be done on a case-by-case basis, not routinely.

DIPYRIDAMOLE INDUCED HEADACHE IS ASSOCIATED WITH INCREASED L-ARGININ/SDMA RATIO

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Background: Nitric oxide (NO) can play a role in migraine attack. The protein breakdown products, asymmetric and symmetric dimethylarginines (ADMA and SDMA, respectively) can modulate endothelial function. Although interictal NO and ADMA in migraineurs and healthy subjects were not different, however little is known about SDMA. Dipyridamole (DP) can provoke headache. The aim of this study was to investigate the role of ADMA, SDMA and L-arginine in DP induced headache.

Methods: Patients with coronary artery disease, who needed DP stress, were investigated. Venous blood was taken before and after DP stress to measure L-arginine, ADMA and SDMA. Hemodynamic parameters were determined during DP stress. The intensity of headache was measured by visual analogue scale (VAS). Statistics: Chi-square and independent sample test.

Results: A total of 44 patients (age: 58.8±9.5, 26 female) were examined. Twenty-five patients (57%) complained about headache. Both the ratio (19:6) and intensity of the headache (3.9±2.6 vs. 1.3±1.9) were significantly higher among female patients (p=0.009, p=0.001 respectively). Pulse pressure (mmHg) measured at 2nd post-stress minute, but no other hemodynamic parameters was significantly higher in patients with DP induced headache (mean: 70, 95% CI: 61-78 vs. 57, 50-63, p=0.014). Moreover, baseline L-arginine/SDMA ratio was significantly elevated in patients with DP induced headache (mean:184.8, 95% CI: 114.8-254.8 vs. 102.4, 66.3-138.6, p=0.037).

Conclusions: Elevated basal L-arginine and reduced basal SDMA serum level was measured in patients with DP induced headache. NO donor L-arginine may participate in the generation of headache, presumably by increasing cGMP levels and by endothelium dependent vasodilatation.

NEUROLOGICAL MANIFESTATIONS IN 56 CONSECUTIVE PRIMARY CARDIAC TUMOURS

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Background: Though rare according to autopsy data, primary cardiac tumours are increasingly recognized and surgical therapy frequently available. Neurological complications, even as presenting symptoms, are not uncommon. We aim to analyze neurological manifestations in 56 consecutive cases.

Methods: We retrospectively reviewed primary cardiac tumours surgically resected (January 1991 - October 2011) in a tertiary hospital. We recorded demographic variables, preoperative neurological symptoms and neuroimaging studies. Regarding cardiac tumours we identified location, size, pathology diagnosis and postoperative outcome.

Results: 56 patients (35 females, 21 males) out of 7835 (0.7 %) were submitted during inclusion period due to a primary cardiac tumour. Preoperative diagnosis was established by echocardiography in all cases. Age at surgery was 61.9 ± 14 year (17-83). In hospital mortality was 5.35 %. Cardiac myxoma was most common diagnosis (43 patients, 76.8%). 14 patients (25 %) presented preoperative neurological manifestations related to cardiac tumour (12 myxoma, 1 fibroelastoma, 1 non-specified benign tumour). Stroke (9 cases, 64.2%) was most common neurological diagnosis. Other manifestations included transient ischemic attacks (3 patients, 21.4%), vertigo and migraine with aura (1 patient, 7.2% each). Among cardiac tumours patients, those with neurological manifestations appeared to be younger (59.1 ± 14.8 versus 62.8 ± 13.7 years).

Conclusion: Stroke is most frequent neurological manifestation of cardiac tumours in our series. Echocardiography evaluation is recommended, especially when stroke appears in young patients, in order to establish early diagnosis and surgical resection. Larger series to determine influence on neurological preoperative manifestations of demographic or tumour characteristics are necessary.

LIPOPROTEIN PROFILES IN PATIENTS SURVIVING THE STROKE

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Background and aims: Among patients, who survived a stroke, an atherogenic lipoprotein profile phenotype B was identified and a predominance of atherogenic lipoproteins of the lipoprotein families, VLDL and LDL, in lipoprotein spectrum, was confirmed. The higher total cholesterol, triglycerides, LDL-2, small-dense LDL and low HDL-cholesterol contribute to the creation of an atherogenic lipoprotein profile. The aim of this study was to identify and quantitatively evaluate atherogenic lipoproteins in patients, who had survived the ischaemic cerebral-vascular stroke.

Methods: 56 patients, 24 men (mean 64years+-13yrs) and 32 women (mean 74+-13yrs) survivors an ischaemic stroke were followed-up. TOAST subtype criteria were used. 45 newly diagnosed, untreated patients with essential hypertension and 153 healthy volunteer controls were compared. Method of Lipoprint LDL Quantimetrix (FDA approved) was used for quantification. Lipids were analysed with an enzymatic CHOD PAP method and score of atherogenic risk (SAR) was calculated.

Results: Among survivors of stroke increased cholesterol, triglycerides, VLDL, ($p=0.001$), LDL, LDL2 ($p=0.0001$), LDL3-7 ($p=0.01$) were found compared to controls. LDL1 and HDL were decreased in stroke surviving patients. Lower SAR confirmed the risk in patients after stroke ($p=0.0001$). Atherogenic profile phenotype B was in 89,3% and type A in 10,7%. The lipid result found among newly diagnosed, untreated hypertensives reflects a precondition leading to vascular-metabolic state, with the serum concentrations close to stroke patient profiles.

Conclusions: Knowledge of lipid profile among stroke survivors may choose early and appropriate hypolipidemic therapy.

Acknowledgements: This study was supported with research grant VEGA 1/0478/12.

Poster Board Number: 111

PREDICTORS OF ISCHEMIC STROKE ACCORDING TO THE MULTICENTER STUDY DATA IN KAZAKHSTAN

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Background: Cerebral stroke is one of the urgent issues in Kazakhstan. The mortality level is one of the highest in the world - 239.9 out of 100000 dead.

Aim: To analyze the frequency of previous cardiovascular and cerebrovascular diseases in patients with ischemic stroke in some regions of Kazakhstan.

Methods: 676 patients with ischemic stroke from 4 different medical centers of Kazakhstan took part in the study. Number of patients by cities: Almaty - 147, Astana - 169, Pavlodar - 146, Shymkent - 214.

Results: Ischemic heart disease was revealed from anamnesis in 32.3% of patients, the share of patients with heart failure is 14.4%, with arrhythmia - 13.8%. Second stroke appeared in 26.8% of patients, also the transient ischemic attack recurred in 9.8% of patients. The most important predictor of ischemic stroke appeared to be atrial fibrillation. According to the data, atrial fibrillation was marked in average in 2.64 ± 0.61 cases. What is remarkable, the difference between data in Almaty and Astana is between 0.67 and 5.88 respectively, which indicates diagnostic equipment advantage of Almaty.

Conclusions: High rates of ischemic heart disease, heart failure, transient ischemic attack, state that stroke is the outcome of various cardiovascular and cerebrovascular diseases. The stroke prediction is the most reliable and inexpensive way to solve such a problem of national level.

Poster Board Number: 112

INCIDENCE OF TRANSIENT ISCHEMIC ATTACK AFTER PERCUTANEOUS AORTIC VALVE IMPLANTATION

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Background: Studying the incidence of stroke (major and minor) after percutaneous aortic valve implantation, and the presence of other complications in the first 24-48h, mainly cardiac arrhythmias especially atrial fibrillation.

Patients and methods: We included 62 patients at high surgical risk with symptomatic severe aortic stenosis undergoing percutaneous aortic valve implantation, after consensus between cardiologists and cardiac surgeons. They were carried out under general anesthesia. The device used was the self-expanding CoreValve percutaneous prosthesis, the implant was performed via the femoral artery.

Results: The average age of patients was 76.7 ± 4.5 , with 40.4% men and 59.6% women. The most frequent cardiovascular risk factors were hypertension (64.9%), dyslipidemia (57.9%), diabetes mellitus (26.3%), with associated extracardiac pathology at 64.9%. Prior to implant 18% had atrial fibrillation and 5% are affected by it after the implant. Major adverse cardiac, cerebral and vascular events (MACCE) events appeared in 77.3% of patients, mainly atrioventricular block, who needed pacemaker in 47%. Our patients had only transient ischemic attacks (TIAs), 2.1% (3p), with full recovery in the early hours and without sequelae.

Conclusions: Despite of the limitations of our study, we found a low rate of stroke associated with percutaneous implantation of the aortic valve with little neurological morbidity. A coordinated multidisciplinary work is needed for the correct care and optimization of the results obtained after the implantation of an aortic bioprosthesis, involving cardiologists, cardiovascular surgeons, neurologists and intensivists.

Poster Board Number: 113

COMPARISON OF THE NUMBER AND TIMING OF CEREBRAL EMBOLI DETECTED DURING CARDIAC VALVE SURGERY, CABG AND CATHETER ABLATION OF AF

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Background and aims: The purpose of this pilot study was to analyse the incidence and timing of cerebral emboli during catheter ablation for comparison with embolic load experienced during CABG and cardiac valve surgery. A detailed understanding of the timing and impact of cerebral emboli may prove useful for understanding the relationship between embolisation and the appearance of new ischaemic lesions in post-ablation cerebral MRI scans (Deneke *et al.* Heart Rhythm 2011, Siklódy *et al.* J Am Coll Cardiol, Gaita *et al.* Circulation 2010).

Methods: Unilateral Transcranial Doppler (TCD) ultrasound monitoring of the Middle Cerebral Artery was performed for 10 CABG, 10 valve and 10 catheter ablation patients. Data were recorded and analysed offline for the presence of embolic signals. Embolic signals were identified based on established consensus criteria and their timing was linked to possible origins of emboli transcribed during each procedure.

Results: The highest numbers of emboli and longest periods of sustained embolisation were experienced by patients undergoing valve replacement. These were mainly attributed to large numbers of bubbles generated during weaning from cardiopulmonary bypass. During catheter ablation a continual low-level of embolisation was typically observed.

Conclusion: Use of TCD to establish the number and timing of emboli has potential to assist surgeons and cardiologists in reducing their patient's exposure to potentially harmful emboli. In future work it would be useful to classify emboli as solid or gaseous and directly compare embolic load during catheter ablation with the results of MRI scans and neuropsychological testing.

Poster Board Number: 114

NEUROVISCERAL AXIE IN PATIENTS WITH ACUTE STROKE

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Background: Concept considering visceral organs dysfunctions as a consequence of autonomic dysregulation at acute stroke was basic in effort of understanding complex comorbidity of those patients.

Purpose: Regarding already existing knowledge of extremely central monoamine release in early postschaemia, the aim of the study was to determine somato visceral repercussions among those patients.

Results: The study included 110 of 330 patients who were treated on the intensive care unit and with CT-verified acute ischemic lesion. Condition for including the group was without history of somatic diseases. Beside neurological examination, ECG, the biochemical status analyses, the physical examination, necessary additional diagnostic exams and internal examination were practiced on reception. Vital parameters were obtained in three hours intervals. Among all patients 81 (74%) had initially increased blood pressure, 25 (23%) had disturbed rhythm of the heart, 57 (52%) had "ischemic" cardiac disease with corresponding alteration in cardiac enzymes profile in 20 (35%) patients. 34 (31%) patients had ischemic hepatopathy and 46 (42%) were with acute renal failure. Those disturbances gain their pick the fourth day from the beginning. Combination of those conditions accompanying low Glasgow comma scale score represents malignant prognostic trias confirmed in 76 (69%) dead patients.

Conclusion: Ischemic brain disease involving serious neurotransmitter disorders (especially monoamines) is accompanied by numerous somatic repercussions and comorbidity. High circulating catecholamine levels and generalized autonomic "storm" obviously have sympathetic and parasympathetic effects accompanying multiorganic failure. Treatment of those patients requires national therapeutic program based on the pathophysiologic events as well as multidisciplinary approach.

WHY DO EMBOLI COME TO REST AT PREFERRED SITES IN THE CEREBRAL ARTERIES?

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Background and aims: The trajectory of an embolus on encountering successive bifurcations in the arterial tree is crucially important for governing the site of new ischemic lesions. This *in vitro* study investigates the motion of solid emboli under physiological flow conditions to explain why embolic particles exhibit a preferred trajectory on their journey through the vasculature.

Methods: Glass bifurcations with vessel diameters ranging between 6 and 2.4 mm were incorporated into a flow-rig generating steady or pulsatile flow of a water-glycerol solution. Neutrally buoyant 500, and 900 μm diameter solid particles were then imaged using high-speed orthogonal cameras to determine the radial positions of emboli as they passed through each bifurcation.

Results: Large particulate emboli tend to migrate to a stable equilibrium position located approximately $0.6r$ of the tube radius from the centre streamline forming a 'ring-like' distribution of emboli within the vessel. This agrees with theoretical fluid dynamical models describing rigid spheres in Poiseuille flow proposed by Segré and Silberberg, and the velocity distribution of clinically observed thrombus emboli detected using transcranial Doppler ultrasound (Chung et al. UMB, 2006).

Conclusions: We conclude that large emboli tend to be concentrated at a preferred radial position in the flow which leads to a non-linear relationship between embolus concentration and flow volume. The probability of a small branch receiving emboli is therefore much lower than would be expected based on volume flow. Clinically, this produces a higher concentration of emboli at the tips of major vessels than in small side branches.

Poster Board Number: 116

THE RISK OF STROKE IN CARDIAC PATIENTS

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Background: Randomly selected population-based cohort aged 45-69 (4288 men and 5109 women) at the high risk for cardiovascular disease West Siberian populations (Novosibirsk) were prospectively studied in 2003-2010. New cases of stroke were diagnosed according to the WHO MONICA criteria. Standardized information was collected about the history of coronary artery disease.

Results: In men, the prevalence of stroke in the groups with coronary artery disease was 4,2%; without coronary heart disease - 2,2% ($p=0,002$); OR = 2,0 (95% CI 1,3-3,0). In women, respectively - 2,2% and 1,3% ($p=0,05$); OR = 1,7% (95% CI 1,0-3,0).

Conclusion: The risk of stroke in the West Siberian population of men and women 45-69 years with combined cardio-cerebral pathology was significantly increased.

IMPACT OF THE PREVALENCE OF PERIPHERAL ARTERIAL DISEASE IN ACUTE ISCHEMIC STROKE IN TAIWANESE

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Peripheral arterial disease (PAD) is associated with coronary artery disease (CAD) and stroke, but data on the relationship between PAD and acute ischemic stroke (AIS) in Taiwan are lacking. The present study was undertaken to determine the prevalence of PAD in AIS and to investigate which patient characteristics were related to the coexistence of PAD in AIS. A total of 132 patients with AIS underwent cranial CT and/or brain magnetic resonance imaging, duplex ultrasonography of the extracranial carotid arteries and echocardiography were enrolled in this study. There were 84 male and 48 female patients and their mean age at onset of AIS was 68.6 ± 11.3 years. PAD was present in 49/132 patients (37.1%), including 11/24 (45.8%) with large artery occlusion, 6/10 (60.0%) with cardiogenic embolism, and 32/98(32.7%) with small artery occlusion. In 32 of these 49 patients (65.3%) with PAD was asymptomatic. The chi-square analysis of the demographic characteristics of AIS patients revealed that age at onset of AIS was significantly associated with PAD, but were not for NIDDM, hypertension, hyperlipidemia and CAD. In addition, there was a significantly positive association in the severity of stenosis between the internal carotid artery and peripheral artery. In conclusion, results of our study suggest that PAD is frequently associated with AIS in Taiwanese and age is an important factor for existence of PAD in the first ever stroke. Therefore, it may be important to perform screening for PAD in patients who have suffered from an ischemic stroke, particularly in elderly patients.

A COMPUTATIONAL MODEL FOR ISCHEMIA FROM SHOWERS OF GASEOUS EMBOLI

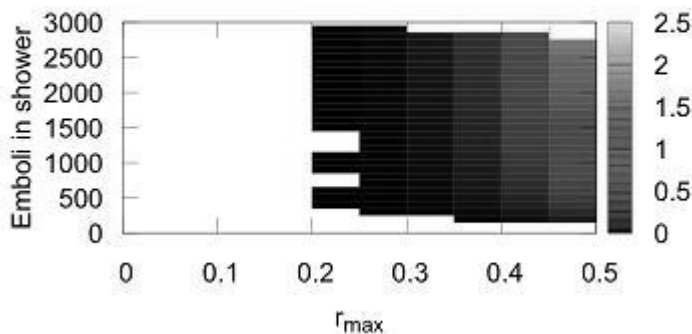
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Background and aims: Cardiac surgery can lead to the production of thousands of gaseous emboli in showers. We aim to understand the effects of these showers and to develop a stroke index based on the number and mean size of gaseous emboli.

Methods: We develop a computational stroke model for the effects of gaseous emboli based on our previous model for solid emboli. Gaseous emboli in the model are deformable and realistic adhesion forces are taken into account. Further additional features introduced into the model are: fluid dynamical considerations, a realistic parameterisation for the rate of embolus dissolution and the effects of buoyancy.

Results: Calculate the total instantaneous blockage and proportion of arterioles blocked for greater than 5, 10 and 15 minutes for maximum embolus sizes ranging from 50 to 500 microns and showers containing between 100 to 3000 emboli. The figure shows the percentage of arterioles blocked for at least 10 minutes.



[Percentage of arterioles blocked for 10 minutes]

Conclusions: Formable emboli carry a much lower risk of ischemia than solid emboli. Since the inclusion of buoyancy effects leads to a weighting of the paths that emboli take, a smaller proportion of the vasculature is compromised, but blockage times are increased. Buoyancy lowers the risk of transient ischaemia but increases the risk of permanent damage.

Poster Board Number: 119

**PARADOXICAL EMBOLISM ASSOCIATED WITH EBSTEIN'S ANOMALY IN ADULTS -
CASE REPORT**

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Ebstein's anomaly (AE) is a rare congenital malformation tricuspid valve which makes "atrialization" of the right ventricle. Only 5% of cases survive over 50 years. The authors describe the case of a 47-year-old male; drug addict, "murmur" several years ago not investigated and without medical supervision. He went to the emergency department with exertional dyspnea and fatigue worsened with recent events suggestive of transient ischemic attacks (TIA). CT cerebral: ischemic lesions with multiple sequelae not recent. A transesophageal echocardiography revealed foramen ovale with right-left shunt and AE, confirmed by cardiac catheterization, and it was concluded that this is a recurrent TIA of cardioembolic etiology, resulting from paradoxical embolism. Undergo corrective cardiothoracic surgery, with subsequent clinical improvement.

Poster Board Number: 120

**NOT ALL STROKES AFTER OPEN HEART SURGERY ARE RELATED TO
ATHEROMATOUS EMBOLI: THE ROLE OF ACUTE STROKE INTERVENTION**

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Background and aims: Traditionally post-surgical strokes were considered a result of atheromatous emboli resulting from aortic clamping. The goal of this retrospective review is to evaluate such patients in the light of new stroke intervention capabilities.

Methods: Eleven consecutive patients with acute stroke symptoms during a one-year period underwent comprehensive evaluation using CT brain without contrast, CT perfusion and CT angiogram of the head and neck. Five patients who were found eligible for acute stroke intervention underwent intra-arterial selective tPA administration and/or mechanical thrombectomy. Outcomes were measured using the NIH stroke scale and the modified Rankin scale.

Results: Only five of the eleven patients were found to be eligible for acute stroke intervention and received intra-arterial tPA. Three of those also underwent mechanical thrombectomy with the Penumbra device or using Hyperglide balloon. Our results indicate that tPA alone successfully treated two of the five cases with complete or almost complete reversal of the stroke symptoms. Four out of five patients showed more than 5 points of improvement on the NIH stroke scale at hospital discharge.

Conclusions: Our results with intra-arterial tPA administration in two cases indicate that the occlusive embolus was made up of soft blood clot rather than an atheromatous plaque. On the other hand, difficulty of clot removal with the Penumbra device in two of the three mechanically treated cases indicate the presence of an atheromatous plaque or a well organized thrombus. These outcomes warrant the need for acute intervention in all post open heart surgery strokes.

Poster Board Number: 121

STROKE ETIOLOGY AND PREDICTORS OF OUTCOME IN PATIENTS WITH HEART FAILURE AND ACUTE STROKE: A 10-YEAR FOLLOW-UP STUDY

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Background and Aims: Heart failure (HF) is the second most important risk factor for severe ischemic stroke after atrial fibrillation (AF). Aim of the present study was to investigate stroke etiology and assess the predictors of late outcome in patients with HF and acute stroke.

Methods : Based on our inclusion criteria 2904 first ever acute stroke patients were recruited HF was present in 283 (9,7%) and AF in 144 (50,9%) of them. Patients were prospectively evaluated based on a standard diagnostic protocol on admission and at months 1, 3, 6 and yearly thereafter up to 10 years after stroke or until death.

Results: Cardioembolic stroke was the most frequent type in the HF patients with AF (82%) regardless of HF etiology. In contrast in the non-AF HF subgroup, stroke type was associated with HF etiology. Valvular heart disease and dilated cardiomyopathy were related to cardioembolism in 60% and 66.7% of cases respectively, whereas HF due to coronary artery disease or hypertension was associated with atherosclerotic and lacunar stroke in 40.8% and 61.5% respectively. HF was an independent predictor of 10-year mortality. The probability of 10-year survival was 19.4% (95%CI: 14.5-23.5) for HF patients and 44.1% (95%CI: 41.4-46.8) for non-HF patients ($p < 0.0001$). 10-year mortality in patients with HF was associated with functional class status, age, diabetes, stroke severity and aspirin use.

Conclusions: In patients with HF, stroke etiology is influenced by the presence of AF and the underlying cause of HF. Late stroke outcome is associated with HF severity

Poster Board Number: 122

THE USE OF ECHOCARDIOGRAPHY FOR INVESTIGATING CARDIAC SOURCES OF EMBOLISM IN PATIENTS PRESENTING WITH TRANSIENT ISCHAEMIC ATTACKS OR STROKES

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Background: Echocardiography is recommended for investigating cardiac sources of embolism. 15-30% of ischaemic strokes are due to cardiac sources. By identifying and treating these sources recurrent strokes will be avoided.

Methods: 100 patients who had undergone echocardiography following a TIA, stroke or retinal artery occlusion were included. Cardiac embolic stroke risk abnormalities were recorded. Patients' records allowed classification of the stroke type according to the Bamford Classification of lacunar, partial anterior circulation (PACs), total anterior circulation (TACS) and posterior circulation infarcts.

Results: 59% were male. Median age 60 years; (range 22-90). 52 patients had a TIA, 45 a stroke and 3 a retinal artery occlusion. 49 echocardiograms were transthoracic, 39 transoesophageal and 12 bubble studies.

61 patients had normal echocardiograms, 17 patients had a PFO, 1 an ASD, 2 patients had a LAA thrombus, 1 had a severely dilated left atrium, 9 had valvular heart lesions, 5 had impaired LV function, 2 had calcified aortas and 1 patient had a LV aneurysm.

Table 1 shows severity compared to cardiac source.

	TIA	Lacunar	PACs	TACs	Posterior	Retinal artery occlusion
No cardiac source of embolus	38	11	5	1	4	2
Cardiac source of embolus	14	7	6	5	6	1
% Cardiac source of embolus	27%	39%	55%	83%	60%	33%

[Severity of stroke and cardiac source]

Conclusion: 49% of patients had a cardiac embolic source. Patients with denser strokes had a higher incidence of a cardiac source. This may guide the use of advanced echocardiograms in patients who have a higher risk of a cardiac cause.

Poster Board Number: 123

CEREBRAL BLOOD FLOW IN THE PATIENTS WITH CHRONIC HEART FAILURE

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Background: Cerebral blood flow (CBF), as a measure of cerebral perfusion, can be studied using Doppler sonography. Brain dysfunction and structural brain changes, are important complication of chronic heart failure (CHF). One of the possible causes may be cerebral hypoperfusion in CHF patients. Therefore, we aimed to investigate the relationship between CBF and CHF severity.

Methods: Study was performed in 76 ischemic or idiopathic dilatative cardiomyopathy patients, left ventricular ejection fraction (LVEF) < 40%, with no clinical evidence of decompensation and 20 healthy volunteers. Each CHF patient was categorized according to the New NYHA criteria. All patients underwent Doppler echocardiography examination. The LVEF was quantified using the Simpson method. CBF was estimated by Doppler sonography as the sum of the flow volumes of the ICA and the VA of both sides.

Results: Atrial fibrillation was noted in 30%, left bundle branch block in 26%, while pacemaker was implanted in 9% of patients with CHF. History of myocardial infraction was presented in 64% of patients. No differences in age, waist/hip ratio, body mass index and lipid profile were found between CHF patients and healthy subjects. CBF was calculated in 71 of 76 patients. Three patients had ICA occlusion ant two patients VA occlusion. Others did not have hemodynamically significant ICA and VA stenosis. CBF volume was decreased in CHF patients, (677 ± 170) according to control (783 ± 128).

Conclusion: Cerebral blood flow, measured doppler-sonographically in neck arteries, was significantly reduced in CHF patients, according to LVEF and NYHA criteria.

Poster Board Number: 124

NEUROGENIC STUNNED MYOCARDIUM AND PERIOPERATIVE MANAGEMENT FOR PATIENTS WITH POOR-GRADE SUBARACHNOID HEMORRHAGE

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Background: This study is performed to evaluate cardiac function in patients with poor-grade subarachnoid hemorrhage (SAH).

Methods: Cardiac function was evaluated using echocardiography for 25 patients with poor-grade SAH (WFNS grade 3 to 5). Ejection fraction (EF) was calculated, and left ventricular wall motion was evaluated along . In 7 patients with decreased EF or abnormal wall motion on admission, serial changes on ECG and echocardiogram were monitored.

Results: Decreased cardiac function with $EF < 0.5$ was noted in 13 of 25 patients (52%). In particular, 9 of 11 patients (82%) with grade 5 SAH revealed $EF < 0.5$. In the 7 patients , EF tended to improve. In each case, EF improved to >0.5 by day 4, and neck clipping was performed. Wall motion was abnormal in 15 of 25 patients (60%). In each case, wall motion also improved by day 4 to hypokinesia or better.

Conclusions: In perioperative management of poor-grade SAH, it is essential that clinicians not overlook the presence of cardiopulmonary dysfunction. Echocardiography should be performed in patients with severe SAH.

Poster Board Number: 125

QTc PROLONGATION AFTER INTRACRANIAL HEMORRHAGE

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Objective: The objective of this study is to investigate the types of QTc abnormalities in patients with non traumatic spontaneous intracerebral hemorrhage and their association with radiological characteristics and in-hospital mortality.

Methods: This is a retrospective analysis of the charts of the patients admitted in our clinic between January 1, 2010 and October 1, 2010 with non traumatic intracerebral hemorrhage. We analyzed the ECG obtained in the first day of the admission; also we analyzed the cranial CT scans.

Results: We included 120 patients. We observed that 84 patients (70 %) had one or more ECG changes. The most frequently observed changes were QTc prolongation, ST-T non specific morphologic changes, ST elevation or depression, tachy/bradycardia. QTc prolongation was associated with the presence of blood in the ventricles and high mortality and poorer outcome.

Conclusion: ECG changes in non traumatic intracerebral hemorrhage are common and seems to correlate with high intrahospital mortality and poorer outcome. QTc prolongation is the most often ECG abnormality observed and is associated with the presence of blood in the ventricles.

Poster Board Number: 126

MANAGEMENT OF GENERAL ANESTHESIA IN PATIENTS WITH ACUTE CARDIOMYOPATHY ASSOCIATED WITH SUBARACHNOID HEMORRHAGE

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Background: Cardiopulmonary complications, such as neurogenic pulmonary edema and neurogenic stress cardiomyopathy, have been well-described sequelae that develop soon after a CNS insult.

Methods: We present two case reports of patients with subarachnoid hemorrhage, complicated by cardiopulmonary complications (ischemic changes on ECG, EF < 30%), and their outcomes after neurosurgical interventions. One patient had a ruptured aneurysm, was managed with endovascular coil embolization, and recovered with full neurological status intact. The other patient had sustained a traumatic brain injury, was managed with emergent craniotomy, and expired within 24 hours.

Results: The first patient had unknown cardiac history, elevated troponin levels, and uneventful intraoperative and postoperative course, which supports new onset of cardiomyopathy. Acute onset cardiomyopathy and a less invasive procedure may have contributed to his excellent outcome.

The second patient had pre-existing CAD, but negative troponin levels. His intraoperative course was complicated by onset of intraoperative pulmonary edema despite a significant diuresis in response to diuretics, which supports the possibility of a neurogenic origin. A more invasive procedure and preexisting comorbidities contributed to his poor outcome.

Conclusions: Patients who develop acute cardiomyopathy after SAH are expected to have a more uneventful intraoperative course in comparison to patients with chronic cardiac conditions.

Less invasive neurosurgical interventions is preferable during the transient acute phase of cardiopulmonary complications associated with subarachnoid hemorrhage. Patients with pre-existing cardiac conditions necessitate invasive cardiac monitoring intraoperatively.

The patient's cardiac condition must be optimized preoperatively if possible, and delaying surgical intervention beyond the acute phase should be considered.

Poster Board Number: 127

ABNORMAL HEART RATE CHARACTERISTICS CORRELATE WITH ABNORMAL EEG AND MRI IN NEONATES WITH HYPOXIC ISCHEMIC ENCEPHALOPATHY

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Background: Heart rate characteristics (HRC) reflect autonomic nervous system function. We developed a method of HRC monitoring for early detection of neonatal sepsis and showed that it reduces mortality in neonatal intensive care unit (NICU) patients. We hypothesized that abnormal HRC would correlate with death and adverse short term neurologic outcomes in neonates with hypoxic ischemic encephalopathy (HIE).

Methods: We collected data on HRC, EEG, MRI, and survival to discharge for NICU patients undergoing hypothermia therapy for HIE from 2005-2010. Average HRC index (aHRC, reflecting HR variability and transient decelerations) was calculated for days 0-4 (during hypothermia/rewarming) and day 4-discharge. EEGs were categorized as normal/mild or moderate/severe encephalopathy and brain MRIs as normal or abnormal (changes consistent with HIE). Associations were tested by one-way ANOVA.

Results: Of 79 neonates admitted for hypothermia therapy for HIE, HRC data were available for 68. Of these, 15 died, and EEG and MRI were performed on 65 and 62 respectively. In the first 4 days higher (more abnormal) aHRC was associated with death, moderate/severe EEG abnormalities, and abnormal MRI ($p < 0.05$). In survivors, aHRC declined from 1.03 ± 0.12 (mean \pm SE) in the first 4 days to 0.54 ± 0.05 from day 4-discharge. From day 4-discharge, increased aHRC was associated with death but not with EEG or MRI findings.

Conclusions: Abnormal HRC are associated with severity of brain injury on EEG and MRI in neonates with HIE, likely representing autonomic nervous system dysfunction. HRC monitoring provides an adjunct measure of neurologic impairment in NICU patients.

Poster Board Number: 128

NEUROLOGICALLY INTACT SURVIVAL FOLLOWING PROLONGED CARDIAC ARREST MONITORED WITH CONTINUOUS CAPNOGRAPHY AND SUBSEQUENT TREATMENT WITH THERAPEUTIC HYPOTHERMIA

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Background and aims: Neurologically intact survival after prolonged out-of-hospital cardiac arrest (OHCA) is very uncommon. If circulation is restored brain damage is common, in major part because of inadequate blood flow during cardiopulmonary resuscitation (CPR). Monitoring with capnography during CPR was employed to guide adequacy of blood flow during a prolonged OHCA.

Methods: A 61 year-old male experienced a witnessed arrest in ventricular fibrillation (VF). The VF was found inadequate in amplitude and frequency by the automated external defibrillator (AED) algorithm to warrant a shock so CPR was continued before the first shock. After endotracheal intubation capnography was employed throughout the resuscitation. He remained pulseless for 63 minutes, during which he received 16 shocks, along with epinephrine, amiodarone and sodium bicarbonate. After the last shock a sustained spontaneous rhythm was restored.

Results: The patient was admitted to the coronary care unit and therapeutic hypothermia was begun with a temperature-controlled system using surface cooling to 33C for 24 hours. A 12-lead electrocardiogram confirmed a STEMI and emergent coronary angiography identified coronary artery disease and intracoronary thrombus in the left anterior descending coronary artery. Percutaneous intervention with thrombectomy and stent placement was performed. After several days of intensive care he was extubated, awakened, and made a complete neurologic recovery.

Conclusions: Despite persistent pulselessness for 63 minutes complete neurologic recovery occurred. Continuous capnography guided the rescue and documented pulmonary blood flow consistent with the possibility of a favorable neurologic outcome. Therapeutic hypothermia improved his chance of recovery as well.

SKULL BIOMECHANICS AND SCF DYNAMICS AS LINKAGE BETWEEN BRAIN PORTION OF HEART STROKE VOLUME AND CEREBRAL CIRCULATION

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Aim of investigations: to elucidate the role of heart pulsations in adequate brain circulatory-metabolic supply, because cardiac activity may influence not only perfusion pressure but also skull biomechanics and CSF circulation inside crania-spinal cavity.

Method: evaluation of role of the mentioned factors was based on simultaneous recordings of two parameters: (1) Pulsations of multifrequency head electrical impedance (16, 100, 200 kHz) by fronto-mastoid electrode position to monitor intracranial changes of blood/CSF volume fluctuations and (2) Pulsations of trans-cranial dopplerography to monitor of linear blood flow velocity in MCA, which corresponds to ICP pressure pulse fluctuations. Received data were underwent computer analysis for evaluation of pressure/volume relations and CSF movements inside skull during pulse cycle. Three age groups (16-24, 30-50 and 75-90 years, including demential patients) were investigated. Sufficiency of brain blood supply to support the adequate mental activity was evaluated by special psycho-physiological method "Prognosis".

Results: It was shown, that 25-35% of cerebral portion of stroke volume could be utilized due to skull expansion by 0.3-0.5% during systolic pressure increase - thus accumulated energy transmits for intracranial blood volume distribution and venous outflow from the skull. Comparative decrease of pulse skull expanding and CSF mobility evoke diminish of brain blood supply, resulted in cerebral circulatory insufficiency.

Conclusion: skull biomechanics and crania-spinal CSF mobility play significant role in mechanism of optimization of brain circulatory-metabolic supply under physiological conditions and may be the reason for developing of cerebro-casular insufficiency and decrease of brain cognitive function, which could observe in some aging periods.

Poster Board Number: 130

THE CARDIAC COMPLICATIONS IN PATIENTS WITH STROKE

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Introduction: Death of cardiac origin is the leading cause of mortality in patients with ischemic brain disease (IBD). During development of brain ischemia cardiac complications are possible. The aim of this study was to determine the existence of cardiac complications or ECG changes in 24 hours electrocardiography monitoring.

Methods: The examination included 60 patients who were hospitalized due to transitory ischemic attack, and brain infarction. We excluded from the study patients with previous history of ischemic heart disease, left bundle branch block. All patients had 24 hours Holter ECG monitoring during first 48 hours after the onset of disease (AIBD).

Results: ST depression was registered in 21 out of 60 observed patients (36,6%), and this were registered in 16 (74%) patients with ischemic lesions in right cerebral hemisphere. Ventricular arrhythmias were registered in 24 (40,0%) patients and in 11(55,0%) with localisation of AIS in right cerebral hemisphere. Also, we found that age is statistically important predictive factor, meaning that ST depression is more frequent in older patients.

Conclusions: Results of our study indicate possible origin of sudden death in patients with AIS, which are to consequence of cardiac complications and support the idea of neural structural involvement in pathogenesis of the cardiac complications and their electrophysiological correlates. Further investigations of larger patients group should discover other potentially important clinical predictors for development of extracerebral complications.

Poster Board Number: 131

FUNCTIONAL OUTCOME AFTER OUT OF HOSPITAL CARDIAC ARREST: A ONE YEAR FOLLOW-UP

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Background: Cardiac arrest survivors may experience hypoxic brain injury that results in cognitive impairments which frequently remains under diagnosed, especially when the patients recover basic level of functioning. We propose a prospective study; our aim is to describe the functional status of cardiac arrest survivors, 12 months after the onset.

Methods: In this prospective study, all adult patients admitted alive after an out of hospital cardiac arrest in one intensive care unit and conscious within the first two weeks have been consecutively included between January 2008 and January 2010. Exclusion criteria included terminal illness, psychoactive or anticonvulsive medication, known history of neurologic disease or alcohol or drug abuse. Follow up consisted of regular interviews and cerebral MRI when possible. The primary outcome measure was the Glasgow Outcome Scale Extended 12 months after the cardiac arrest.

Results: 17 patients have been consecutively included. Less than 15% of them had returned to their premorbid level of functioning with a vocational and personal reintegration.

Conclusion: We include only patients that were conscious within the first two weeks after a cardiac arrest and at one year, only 13% of them were free of sequelae at one year whereas half of them needed help for basic to elaborate activities of daily living. This small sample study calls for more large ones, proposing systematic follow-up for survivors after a cardiac arrest.

Poster Board Number: 132

NEW MRI MARKER FOR AN OLD FOE; T2 HYPERINTENSITY OF MEDIAL LEMNISCUS PREDICTS PRESENCE OF SMALL VESSEL DISEASE

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Background: Small vessel disease (SVD) is a common MRI finding. It can be difficult to differentiate SVD from other white matter (WM) diseases due to lack of specific pattern of brain involvement. Purpose of our study was to evaluate Medial Lemniscus (ML)-hyperintensity (MLH) seen on FLAIR images as an imaging marker for SVD.

Materials and methods: Two blinded neuroradiologists retrospectively reviewed 103 consecutive outpatient brain MRI studies. ML signal in dorsal pons was evaluated; visually on FLAIR and after placing regions of interest (ROI) on T2-weighted images. Based on original interpretations, scans were divided into 3 categories; SVD, multiple sclerosis (MS), and normal/nonspecific WM changes. Cardiovascular risk factors were recorded. ANOVA, and Fisher's exact test were used to determine group differences and kappa statistics was used to determine inter-rater agreement.

Results: There were 37 patients in SVD, 14 patients in MS and 52 in nonspecific group. MLH was seen about 20% of patients with SVD and was generally bilateral. Although ROI analyses identified slightly more number of patients with ML signal >20% of adjacent to normal appearing brainstem, inter-rater reliability was moderate and there were false positive and negative cases compared to visual data. When SVD patients were further subdivided into mild or advanced subgroups, MLH was selectively

seen in advanced SVD. Patients with MLH were older ($p < 0.001$), and had higher prevalence of diabetes ($p=0.03$), hypertension ($p=0.009$) and hypercholesterolemia ($p=0.03$).

Conclusion: MLH seen on FLAIR images is a reliable radiologic marker of advanced SVD.

EFFICACY OF JAPANESE TRADITIONAL MEDICINE (KAMPO) IN TREATING VARIOUS SYMPTOMS STROKE SURVIVORS

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Introduction: The aim of this study was to investigate the effects of Kampo(Japanese traditional medicine) on various post stroke manifestations.

Methods: Between September 2008 and July 2011, 95 patients (mean age 68) were prescribed Kampo and were classified into 7 groups based on the symptoms of stroke. Groups A to D were associated with hemeiplegia:

Group A (n=38) comprised patients with hemeiplegia and edema.

Group B (n=50) patients with hemiplegia and pain.

Group C (n=56) patients with hemiplegia and cramps.

Group D (n=56) patients with hemiplegia and numbness.

Group E (n=85) included patients with paralytic ileus.

Group F (n=26) patients with dementia.

Group G(n=15) with headache. These patients were administered *GOREISAN, KEIHIKAJUTUBUTOU, SYAKUYAKUKANZOUTOU, KEIHIBUKURYUUGAN, DAIKENTYUUTOU, YOKUKANNSAN and TYOUTOUSAN*.

We investigated the efficacy of Kampo by using the Clinical Global Impressions.

Results:

Group A 26.2.8 and 2patients reported “considerably much improvement” “much improvement” “minimal improvement” and “no change” in their symptoms.

Group B 32.15.3 and 0 patients.

Group C 45.11.0 and 2 patients reported “considerably much improvement” “much improvement” “minimal improvement” and “no change”

Group D were5.10.30.and 11. Group E 80.5.0 and 0 patients reported “ considerably much improvement in there ” “much improvement” “minimal improvement” “no change” thus 83 of 85 97.6%patients reported good improvement.

Group F 15.8.3.and 0.

Group G were 10. 2.0.and0.

Group H were 10.7.0. and 0.

Conclusion: After the treatment with Kampo medicines, significant improvement in the symptoms was observed. Kampo was effective in the alleviation of various symptoms associated with stroke.

Poster Board Number: 134

HRV IMBALANCE INDICATES INCREASED CARDIAC COMPLICATIONS RISK IN POST-STROKE LONG-TERM

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Background and aims: After stroke cardiovascular risk are increased in patients with coronary artery disease (CAD), atrial fibrillation. We aimed to estimate the heart rate variability (HRV) predictive significance in post-stroke long-term.

Methods: Between 21-28 days after ischemic stroke 133 patients (90 men, aged 59 ± 11) with sinus rhythm were enrolled to prospective investigation. At baseline low frequency (LF) and high frequency (HF) components of HRV were analyzed with 24-hour Holter monitoring. Primary outcome was a composite of myocardial infarct, unstable angina, congestive heart failure (CHF), including acute CHF decompensation, vascular mortality and sudden cardiac death. Patients were phone called every 3 month.

Results: Median follow-up was 18 (9, 48) months. Primary outcome recorded in 13 (10%) patients (1 group), other 120 patients formed 2 group. Both groups were follow-up period, stroke and cardiac characteristics comparable. But 1 group patients were elder (68 vs 57 years) and more frequently suffered from stable angina: 7 (54%) vs 36 (30%) in 2 group ($p < 0.02$). In 1 group median HF ($p = 0.05$) and LF ($p < 0.01$) daily values were lower: 34 is^2 and 123 is^2 vs 89 is^2 and 355 is^2 in 2 group. At night time HF and LF were also lower ($p < 0.01$) but day-time LF power exceeded ($p < 0.01$) 2 group values: 689 is^2 vs 35 is^2 .

Conclusion: HRV disturbances notably reduced parasympathetic activity, para- and sympathetic daily imbalance as raised day-time sympathetic component power in elder patients with stable CAD forms indicate an increased cardiovascular risk in the post-stroke long-term.

Poster Board Number: 135

IMPACT OF PERFORMING ACUTE STROKE CT ANGIOGRAM AND PERFUSION STUDIES ON ACUTE STROKE MANAGEMENT

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Background: Acute stroke patients (ASP) often have CT studies with dye (CTD) to assess perfusion and cerebral vessels. These studies take additional time to perform and health care professionals are concerned that this additional time could impact acute stroke management by prolonging door-to-needle times.

Methods: The following data were collected on ASP's brought to the Mayo Clinic Arizona (MCA) ED by EMS and treated with intravenous thrombolytic medication: door-to-needle times (DTNT), whether CTD's were performed, and the additional time taken to perform CTD's. Patients were divided into two groups based on whether they had CTD's performed, and the mean DTNTs of the two groups were compared using a one-way ANOVA.

Results: Between January 2010 and August 2011, data was collected on 61 ASP's treated with intravenous thrombolytic medication. Of these 61 patients, 38 had CT studies with dye. The mean additional time taken to perform CTD was 9 minutes (SD = 4.0; range 4 - 27 minutes). The mean door-to-needle times for patients who did, or did not, have CTD were 68 minutes (SD = 15; range 41 -111 minutes) and 70 minutes (SD = 22; range 43 - 108 minutes) respectively. A one-way ANOVA showed no significant difference between the mean door-to-needle times for the two patient groups ($p=0.63$).

Conclusion: At Mayo Clinic Arizona, performing CT studies with dye as part of the evaluation of ASP's adds time to the evaluation, but has no significant impact on the door-to-needle time for ASPs receiving acute stroke treatment.

ANTICOAGULATION USE IS ASSOCIATED WITH ISCHEMIC STROKE AND NOT INTRACEREBRAL HEMORRHAGE IN ULTRA-ACUTE STROKE PATIENTS EVALUATED IN THE FIELD

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Background: Intracerebral hemorrhage (ICH) is a feared complication of anticoagulation. Emergency Medical Services (EMS) personnel routinely obtain data on medications during prehospital evaluation. We sought to determine if EMS-obtained history of anticoagulation was associated with hemorrhage in ultra-acute stroke.

Methods: Field Administration of Stroke Therapy - Magnesium (FAST-MAG) is a phase 3 randomized placebo-control study of prehospital-initiated intravenous magnesium v placebo initiated less than 2 hours from onset. Clinical exam, demographics and medical history were obtained from the paramedic run sheet. Diagnosis of ICH was based on first imaging study in the emergency department.

Results: A total of 1119 consecutive patients had data for evaluation, mean age was 70 (SD 13) years, 40% were women, 23% Hispanic Ethnicity, 77% white race, and 23% had ICH on initial imaging. A total of 114 (10%) were on anticoagulation at EMS evaluation, most often for known atrial fibrillation (n=83) and/or valvular heart disease (n=44). Those on anticoagulation were less likely to present with ICH compared to all others (16% vs 25%). This is despite having higher average prothrombin time (20 vs 12, p< 0.001) and activated partial thromboplastin time (35 vs 28, p< 0.001). Among those on anticoagulation having an elevated PTT (>20) indicated higher rate of ICH (12/42, 29% v 5/57 8%, p=0.022).

Conclusions: The use of anticoagulation in stroke patients assessed in the field is not associated with hemorrhagic subtype. These patients most often present with ischemic stroke reflecting the high baseline risk which led to the need for anticoagulation.

INTRACTABLE PARTIAL EXTRA-CRANIAL VERTEBRAL ARTERY OCCLUSION: A CASE REPORT

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We report a case (51 year-old male) of intractable partial extra-cranial VA occlusion by mechanical injury of cervical rotation by golfing. The man was admitted to our hospital with neck pain, dysarthria and dizziness. He was a golf lover and there were no special affairs in anamnesis. On admission, blood pressure was 223/110 mmHg. Neurological examination showed clear consciousness and there were no cranial nerve palsy and hemiparesis. MRI showed fresh cerebellar infarction and MRA revealed partial occlusion of left VA (from beginning to C5 portion). We diagnosed VA was occluded by traumatic dissection, because he played golfing many times before attack and antihypertensive therapy were started with administration of edaravone. However he was suffering with convulsion and disturbance of consciousness at 10 days after admission, MRI detected new infarction in cerebellum, occipital lobe and lesion of paramedian mesencephalic artery and MRA showed obstruction of basilar tip. DSA was performed continuously, it revealed re-canalization of basilar tip. We thought mechanism of recurrence was artery-to-artery embolism, argatroban and clopidogrel administration was added. He went good course and left 24 days after admission. However 3 days after discharge, he felt dizziness and MRI detected new cerebellar infarction, he was hospitalized again. A second-recurrence mechanism was considered to be thrombus formation by blood-flow stagnation and we changed medication into anticoagulation therapy with heparin and warfarin and the recurrence was not observed until now. In case of blood-flow stagnation by partial arterial occlusion, an anticoagulation therapy was effective to prevention recurrence.

Poster Board Number: 138

EMERGENT REVERSAL OF WARFARIN-INDUCED COAGULOPATHY WITH RECOMBINANT ACTIVATED FACTOR VII ALLOWS PROMPT SURGICAL HEMATOMA EVACUATION - CASE REPORT

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Background and aims: Wider use of oral anticoagulants has increased the frequency of warfarin-related intracerebral hemorrhage (W-ICH). Half of patients with W-ICH die within 30 days. This high early mortality has remained stable over time. No consensus exists regarding the optimal treatment of this lethal, iatrogenic form of stroke. Randomized trials addressing treatment are unavailable. Current management is based on small case series.

Methods: An 80 year-old right handed male on warfarin therapy for stroke prevention in the setting of atrial fibrillation, CHADS2 score 2 (age and hypertension), independent at baseline (mRS 0), presented normotensive with altered cognition and left hemiparesis (NIHSS 18; GCS VR-1, EO-1, MR-6). Head CT revealed a right frontal lobar 100cc parenchymal hematoma with 5mm of midline shift (Image 1).



[Image 1]

INR of 3.95. was treated with vitamin K 10mg IV, fresh frozen plasma (FFP) 15mg/kg and recombinant factor VIIa (rFVIIa) 30mcg/kg.

Results: Within 2 hours INR was 0.76 and the patient was taken to the OR for a right frontal craniotomy and uncomplicated hematoma evacuation.

Conclusions: Although yet an off-label indication, rFVIIa promptly reverts warfarin-induced coagulopathy allowing early hematoma evacuation when clinically indicated. The use of FFP and prothrombin complex concentrate (PCC) is often prohibitive in older subjects with heart disease due to the large volume required to normalize coagulation parameters with these two agents.

PERIAQUEDUCTAL GREY DEEP BRAIN STIMULATION MODULATES HEART RATE VARIABILITY AND SYSTOLIC BLOOD PRESSURE IN AWAKE HUMANS

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Introduction: The periaqueductal grey (PAG) of the midbrain has been shown to increase or decrease arterial blood pressure when electrically stimulated in humans and animals and to reduce the postural drop on standing. This study aimed to investigate whether PAG stimulation also modulated autonomic performance.

Methods: Patients were studied in the neurosurgical theatre during implantation of deep brain stimulators within the PAG for chronic pain syndromes. Continuous intra-arterial systolic blood pressure (SBP) was transduced and heart rate (HR) recorded by electrocardiogram, and broken into three windows of 100 seconds: before, during and after electrical stimulation. Heart rate variability (HRV) was derived from the R-R interval by autoregression.

Results: PAG stimulation produced changes in SBP, HR and HRV in 5 of 7 patients studied. Increases in SBP of 7.2-10.2mmHg occurred in three electrode positions, decreased by 3.1-11.5mmHg in two positions, and was unchanged in two positions. Percentage SBP change was positively correlated to change in low frequency HRV component ($r=0.818$, $p=0.02$, $n=7$), high frequency HRV component ($r=0.685$, $p=0.09$, $n=7$), and low frequency:high frequency ratio ($r=0.667$, $p=0.10$, $n=7$), the former reaching statistical significance.

Conclusions: PAG stimulation can modulate HRV, a measure of autonomic performance, in addition to cardiovascular variables. DBS provides an ethical and safe method for studying the brainstem modulation of the systemic circulation in awake humans.

Poster Board Number: 140

THE RELATIONSHIP BETWEEN PERIPHERAL ARTERIAL DISEASE AND ACUTE ISCHEMIC STROKE IN TAIWAN

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Peripheral arterial disease (PAD) is associated with coronary artery disease (CAD) and stroke, but data on the relationship between PAD and acute ischemic stroke (AIS) in Taiwan are lacking. The present study was undertaken to determine the prevalence of PAD in AIS and to investigate which patient characteristics were related to the coexistence of PAD in AIS. A total of 132 patients with AIS underwent cranial CT and/or brain magnetic resonance imaging, duplex ultrasonography of the extracranial carotid arteries and echocardiography were enrolled in this study. There were 84 male and 48 female patients and their mean age at onset of AIS was 68.6 ± 11.3 years. PAD was present in 49/132 patients (37.1%), including 11/24 (45.8%) with large artery occlusion, 6/10 (60.0%) with cardiogenic embolism, and 32/98(32.7%) with small artery occlusion. In 32 of these 49 patients (65.3%) with PAD was asymptomatic. The chi-square analysis of the demographic characteristics of AIS patients revealed that age at onset of AIS was significantly associated with PAD, but were not for NIDDM, hypertension, hyperlipidemia and CAD. In addition, there was a significantly positive association in the severity of stenosis between the internal carotid artery and peripheral artery. In conclusion, results of our study suggest that PAD is frequently associated with AIS in Taiwanese and age is an important factor for existence of PAD in the first ever stroke. Therefore, it may be important to perform screening for PAD in patients who have suffered from an ischemic stroke, particularly in elderly patients.

Poster Board Number: 141

EPIDEMIOLOGY OF CEREBROVASCULAR DISEASES AMONG CHINESE CANADIANS WITH DIABETES MELLITUS: A TEN YEAR CASE-MIX PILOT STUDY

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Background/purpose: An article published in Neurology Asia, 2006 by JYC provided impetus to confirm whether specific genetic or environmental differences exist within the diabetic-Chinese stroke community. Exposing distinctive epidemiologic and cerebrovascular patterns will bring forth effectively focused treatment and prevention. From that basis, we hypothesized: Chinese who had stroke-history within 15 years are more commonly diabetic than Caucasians, and Chinese more frequently have small vessels disease (SVD) than Caucasians.

Methods: Patients of JYC, seen during 2001-2011 at his Toronto Queensway Professional Center Neurology clinic and at William Osler Health System, Brampton Site, were investigated. Chinese diabetic stroke patients were selected by last name and birth country; similarly diagnosed Caucasian patients were age-sex matched correspondingly. Risk factors were acknowledged if patients were given explicit medical treatment. Otherwise, guideline values were obtained from the WHO criteria.

Results: Significance confirmed ($P < 0.05$): Chinese had higher DM and stroke incidence than Caucasians (28.7% vs. 23.2%). Diabetic Chinese more frequently had SVD (51.1% vs. 44.1%), specifically lacunar stroke (47.9% vs. 36.4%). Co-morbidity of SVD+ risk factor was more frequent in Chinese. Furthermore, SVD frequency dominated over large vessels disease (LVD) in the Chinese.

Conclusions: Chinese with stroke more frequently have diabetes than Caucasians. Diabetic Chinese are especially susceptible to small vessels disease and are uniquely responsive to stroke risk factors compared to the Caucasians. Risk factor prevalence and stroke types differ considerably between Chinese and Caucasians within Toronto, signifying an urgent need for tailored treatment plans.

Poster Board Number: 142

DYSLIPIDEMIA IN PATIENTS WITH TRANSIENT ISCHEMIC ATTACK

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Background: The risk of recurrent stroke following transient ischemic attack (TIA) is reported up to 15% at 90 days after the attack. Urgent assessment and combined use of preventive treatments in appropriate patients can reduce this risk significantly. This study was aimed to investigate if dyslipidemia was related to atherosclerotic vascular lesions in the patient with TIA.

Methods: Patients with TIA who admitted to single hospital were included to analysis. Radiologic findings were reviewed retrospectively. Association between presence of atherosclerotic vascular lesions and lipid profile were examined. Atherogenic dyslipidemia was defined as high density lipoprotein (HDL) cholesterol \leq 40 mg/dL and triglycerides \geq 150 mg/dL. Level of non-HDL cholesterol was calculated as total cholesterol concentration minus HDL cholesterol concentration.

Results: From June 2006 to July 2011, 117 patients admitted to Neurology department and were diagnosed as TIA. Among 117 TIA patients, 114 patients had available vascular imaging data. Among them, 106 patients who had available results of lipid profile evaluated under fasting conditions were included to the analysis. Mean age was 64 years (\pm 13), and 48 were men (42.1%). Fifty-six patients (52.8%) showed atherosclerotic vascular lesion. Presence of atherosclerotic vascular lesions was associated with age, diabetes, low density lipoprotein (LDL) cholesterol concentrations, and level of CRP. Atherogenic dyslipidemia was not related to vascular lesions.

Conclusions: In TIA patients, concentrations of LDL cholesterol were related atherosclerotic vascular lesion. It might be helpful to screen high risk patient who can be suffer recurrent stroke after TIA.

Poster Board Number: 143

THE COGNITIVE DYSFUNCTION IN PATIENTS WITH OBESITY. ROLE OF THE ENDOCANNABINOIDS

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Background: The relationship between obesity and cognitive function is controversial.

Methods: Study group (9 female and 8 male) with body mass index (BMI) ≥ 25 kg/m², waist circumference (WC) (>94 cm in male, >80 cm in female) and control group (n=15) enrolled in our investigation. Mean age was 47,81 \pm 2,34 years. Cognitive function was assessed with neuropsychological battery. Plasma endocannabinoid (anandamide, 2-arachidonoylglycerol) were quantified by liquid chromatography-tandem mass spectrometry. Statistical methods included disperse and correlation analyses.

Results: MMSE scores were low in study group (27,7 \pm 1,87 and 29,9 \pm 1,91, p< 0,05). We founded correlation between BMI and CFQ (r=0,58; p< 0,05) and short memory (r=-0,45; p< 0,05).

High BMI and WC were significantly associated with higher decline on MMSE. In study group were established correlations between: 1) 2-arachidonoylglycerol levels and CFQ scale (r=-0,56; p< 0,05) and short memory (r=0,67; p< 0,01). 2) 2-arachidonoylglycerol levels and BMI (r=0,47; p=0,001) and WC (r=0,65; p=0,003).

Conclusion: Our findings suggest that a high BMI and WC lead to activation of the endocannabinoid system and to decrease of cognitive function.

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