EP3201
The unilateral high-grade internal carotid artery changes – brain focal impairment and hemodynamic parameters in relation to the type of collateral supply
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Introduction: To study the relationship between collateral flow via different pathways and cerebral hemodynamic parameters in patients with unilateral high-grade internal carotid artery (ICA) changes.

Methods: 71 patients (41 -with severe stenosis and 30 with occlusion of ICA) underwent brain MRT (1.5T,3T), 3D TOF-MR-angiography, Color Doppler of extra-intracranial vessels to investigate collateral flow via the circle of Willis (AComA, PComA) and via the ophtalmic artery (OphA). The cerebral perfusion parameters maps were calculated.

Results: In 50 (70%) cases “symptomatic” cerebral ischemia was marked. In symptomatic patients prevealed cortical MCA infarctions (13 (26%)), and border-zone infarctions-10 (20%). In ICA occlusion cases compensatory dilatation of contralateral ICA and enhancement of flow volume by 60%, enhancement of flow in the vertebral arteries was marked. Whether patients without collateral flow via the circle of Willis or flow via the PComA only have a high incidence of brain infarction (13 (85%)) and impaired hemodynamic parameters in the MCA(V mean-38sm/s, PI-0.69), than patients with collateral flow via the AComA. Patients with reversed OphA could prove an additional risk for infarction. Patients with collateral flow via both anterior and posterior communicating arteries had less increased rCBV than those without.

Conclusions: Patients with collateral flow via the PComA and reversed OphA have more impaired hemodynamic parameters and a higher risk of brain infarctions, than patients with collateral flow via the AComA. Complex use of TCCD, 3D TOF-MR-angiography and PWI gives all neccessary information about type and hemodynamic parameters of collateral supply in high-grade carotid artery changes.

Disclosure: Complex use of TCCD, 3D TOF-MR-angiography and PWI gives all neccessary information about type and hemodynamic parameters of collateral supply in high-grade ICA changes.

EP3202
Rapidly progressive dementia, gait disorder and myoclonic jerks, mimicking CJD
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Introduction: Rapidly progressive dementia and myoclonia may point to the diagnosis of sporadic Creutzfeldt Jacob’s disease (sCJD). We present a similar case with a different, yet treatable diagnosis.

Methods: Case report: A female patient aged 77 was admitted with left-sided and generalized myoclonic jerks and seizures. During the last weeks she had developed severe ataxia, rapidly progressive dementia and irregular myoclonia. Neurologically, she showed mild spastic tetraparesis and akinetic mutism. Eye movements were normal. Series of irregular myoclonic jerks could easily be triggered by sensory stimulation or by the initiation of movements.

Results: EEG showed moderate slowing with periods of rhythmic generalized sharp waves, and triphasic waves, most pronouncened over the left fronto-precentral region. CSF was normal, protein 14-3-3 was negative. MRI showed multifocal confluent T2 hyperintensities of cerebral white matter, associated with multiple small spots of signal extinction in SWI. Stereotactic brain biopsy yielded multiple amylid plaques and deposits of beta amyloid in the walls of small arteries, where also cytotoxic T lymphocytes and macrophages were found, thus confirming the diagnosis of „amyloid beta-related angiitis“ (ABRA). Treatment with steroids lead to partial improvement.

Conclusions: ABRA is the inflammatory / vasculitic variant of cerebral amyloid angiopathy (CAA). As vasogenic edema of the subcortical white matter often develops within a few weeks, its clinical appearance may include rapidly progressive dementia, thus being an important differential diagnosis of CJD. The typical MRI pattern and a relatively good response to steroids lead to the correct diagnosis, which may be confirmed by brain biopsy.

Disclosure: Nothing to disclose
EP3203

Cerebral vein and dural sinus thrombosis – an evaluation of 54 cases

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Introduction: Cerebral vein and dural sinus thrombosis (CVT) generally manifest in various non-specific clinical forms. The aim of our study was to identify CVT causes and risk factors, to describe the demographic, clinical, laboratory, and neuroimaging data, and to evaluate the treatment and outcome.

Methods: We analysed 54 CVT consecutive patients, which were examined at admission and after three months, using the mRS scores.

Results: Mean age was 37.3 years (SD 7.6), sex ratio: male/female was 1/2. 83.3% of women were fertile. The most frequent neurological syndrome was intracranial hypertension. CT showed direct signs of dural sinuses thrombosis in 8 pts, and venous cerebral infarcts in 20 cases. MRI identified thrombosis of SSS in 38 pts, transverse sinus in 20 cases, cavernous sinus in 4 pts. 12 out of 54 MRI had a normal prior CT. DSA revealed isolated cortical veins occlusion, without sinus occlusion in 4 cases. Risk factors were identified in 40 pts (74.1%); congenital thrombophilia being the most common (18 cases). All pts received anticoagulant therapy. After 90 days from admission, functional outcome was good, with a mRS score ≤2 in 32 pts, moderate/severe disability in 15 cases, the death rate being 12.9% (7 pts). Severity of CVST was found to be associated with presence of rapidly worsening symptoms (p=0.001), and occlusion of 4 or more sinuses (p=0.005).

Conclusions: CVT was common in women of fertile age. The outcome was favorable if the pts were promptly diagnosed and adequately treated.

Disclosure: Nothing to disclose

EP3204

Selective serotonin reuptake inhibitors for the prevention of post stroke depression: a meta analysis

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Introduction: Depression following stroke has often been overlooked and is associated with decreased functional recovery and increased mortality. Data regarding its prevention is conflicting.

Objective: The objective of the study is to determine if selective serotonin reuptake inhibitors (SSRIs) are effective and safe in preventing post-stroke depression (PSD).

Methods: We searched for articles evaluating the efficacy of any SSRI for prevention of PSD. The pooled relative risk (RR) and 95% confidence intervals were calculated. Frequency of side effects was also calculated.

Results: A total of 4 articles and 405 patients were included in this study. Our meta-analysis has demonstrated that SSRIs reduced the incidence of PSD (RR=0.36, 95% CI 0.22-0.60) without significant heterogeneity. Also, the occurrence of adverse effects was not significantly different from that of the control group.

Conclusions: SSRIs are beneficial for the prevention of PSD and in doing so, it may increase functional recovery and decrease mortality.

Disclosure: Nothing to disclose
EP3205

Endovascular treatment of stroke patients with large pretreatment DWI lesions

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Introduction: Initial diffusion-weighted imaging (DWI) lesion volume on MRI before acute stroke therapy has been identified as predictor of outcome and patients with large volumes are usually excluded from therapy in clinical practice and treatment studies. The aim of this study was to analyze the impact of large lesion volumes on outcome in a larger cohort of endovascular treated patients.

Methods: 372 patients with middle cerebral artery or internal carotid artery occlusions, who had baseline MRI and were treated since 2004 were included. Baseline data and 3 months follow up were recorded prospectively. DWI lesion volumes were obtained semi-automatically.

Results: DWI lesion volumes were an independent predictor of favourable outcome (mRS 0-2), survival and symptomatic intracerebral bleedings (sICH) (p<0.001 each). Of 66 patients with lesions >70ml, 11/31 (35.5%) reached favourable outcome after TICI 2b-3 reperfusion in contrast to 3/35 (8.6%) after TICI 0-2a reperfusion (p=0.014). Similar outcome rates were obtained in 39 patients with lesions >100ml (33.3% good outcome after TICI 2b-3 and 8.3% after TICI 0-2a reperfusion). Reperfusion success, the patient’s age and DWI lesion volume were independent predictors of favourable outcome in patients with DWI lesions >70ml.

Conclusions: Despite raising risk for poor outcome and sICH with increasing initial DWI lesion volumes, favourable outcome was achieved anyhow in every third patient with DWI lesions >70 ml after successful endovascular reperfusion, whereas only every twelfth reached favourable outcome after poor or failed reperfusion. Endovascular therapy may be considered especially in young patients with large initial DWI lesions.

Disclosure: Nothing to disclose

EP3206

Human angular path integration, timing and temporoparietal junction

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Introduction: Path integration is the process of updating one’s travelled distance from motion cues. For linear path integration, haptic and vestibular cues contribute whereas vestibular cues predominate for angular path integration. Theoretically, path integration could involve a temporal integration of motion cues, requiring a timing mechanism.

Methods: We tested whether unconscious updating of internal estimates of self-position can update internal estimates of motion duration perception in 16 healthy volunteers. In a second series of experiments, we assessed perceived self-location, perceived self-motion duration, and perceived self-motion angular velocity in a vestibular-guided task in the dark in 18 right hemisphere stroke patients and 14 age-matched controls.

Results: In healthy subjects, when vestibular-derived angular position was updated by masked imperceptible visual landmarks, motion duration estimates were congruently updated. Furthermore, angular path integration was severely disrupted by right temporoparietal junction (TPJ) lesions for leftward (not rightward) whole-body turns. The navigational deficit was unrelated to neglect of self-motion velocity perception however TPJ patients displayed a timing bias, perceiving leftward rotations as briefer than rightward.

Conclusions: These data suggest that human angular path integration is mediated by the TPJ and involves an internal representation of temporal self-motion duration.

Disclosure: Nothing to disclose
EP3207

Relevance of glycemia, blood pressure levels and temperature in acute stroke

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Introduction: The effect of blood pressure (BP) variations, hyperglycemia and hyperthermia is actually well documented, however the results of studies are controversial.

Methods: We studied 446 patients with acute ischemic stroke admitted at the stroke unit between July 2009 to July 2010. We recorded admission blood pressure and blood pressure values from continuous 72 hours monitoring, admission glycemia and serial mean temperature from admission until 7 days after stroke. Clinical data including NIHSS (National institute of health stroke score) (admission and discharge), infarct volume and mortality (30 days and long term) were included into the analysis. Data were analysed using SPSS 19.0

Results: Admission NIHSS, lesion volume and early mortality did not correlate with hypertensive episodes within the first 72 h or admission hyperglycemia. However there were a significative relation between low admission systolic BP <140 mm Hg, admission hyperglycemia and increased risk of death one year after stroke. Mortality was higher in patients with hyperthermia >37.5°C 48h after stroke: p=0.009 OR=2.783 (IC 95%; 1.257-6.162), also sever stroke (NIHSS>6) was more frequent in these patients: p=0.030 OR=20,66 (IC95%; 1,331-320,580 ). On the other hand 84% of patients with admission NIHSS >6 had a mean temperature>37.5°C 48h after stroke.

Conclusions: The role of blood pressure and hyperglycemia is not well established because of used thresholds considered by studies and methodological differencies.

Disclosure: Nothing to disclose

EP3208

Clinical and neuroimaging particularities of posterior reversible encephalopathy syndrome in pregnancy

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Introduction: Posterior reversible encephalopathy syndrome (PRES) may be associated with pregnancy and sometimes its diagnostics is very difficult.

Methods: We observed 7 cases of PRES in patients with preeclampsia and eclampsia during 2010-2013 in the Republican clinical hospital, Kazan.

Results: All patients had headache and impairment of consciousness (up to coma). 6 patients had visual signs and four of them also had motor deficits and mild or moderate meningeal signs. There were seizures (tonico-clonic and myoclonic ones) in the onset of the disease in 6 cases. In one case we saw only headache, rapid impairment of consciousness up to sopor associated with distinctive MR signs. The symptoms always developed against the background of raised blood pressure. Authentic diagnosis of vasogenic edema of brain, represented in PRES is based on MR DWI and ADC map images. The regions of vasogenic edema are characterized by hypo- or isointensed signals on DWI and increased signals on ADC maps. Initial MR imaging demonstrated areas of vasogenic edema of occipital and parietal lobes in every case, in 3 cases frontal lobes were involved and 1 patient had lesions of cerebral peduncles, pons and basal ganglia. There were associated acute ischemic lesions in 2 cases and hemorrhagic imbition in the other one. If treatment was proper neuroimaging and clinical signs regressed in 1-4 weeks.

Conclusions: Prompt definition of this condition allows to choose correct tactics of treatment and consequently leads to laudable outcome for a patient.

Disclosure: Nothing to disclose
EP3210
Knowledge about symptoms and risk factors of stroke among students of medical and non-medical universities in Poland
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Introduction: Stroke is one of the leading causes of death and disability worldwide. Knowledge about risk factors is an essential element of primary prevention, and awareness of the stroke symptoms may accelerate hospitalization and the therapy. The aim of the study was to assess knowledge about stroke among young people – university students.

Material and methods: The study included 341 students of the Silesian University of Medicine and Higher School of Labour Protection in Katowice, divided into three groups: MS – sixth-year students of medicine (n=102), ES – third-year students of medical emergency (n=32), NMS - students of non-medical faculties (n=207). In the study the authored questionnaire was used.

Results: Average numbers of correctly listed risk factors were: 2.9±1.2 (MS), 2.5±1.3 (ES) and 0.5±0.8 (NMS). Smoking and hypertension were most frequently reported by all the groups. Average numbers of listed symptoms were: 3.8±1.2 (MS), 2.9±0.9 (ES) and 1.3±1.2 (NMS). Most frequently reported were: paresis, speech and visual disorders (MS); loss of consciousness, paresis (ES); paresis, headache (NMS). The majority of respondents would call an ambulance when stroke was suspected (MS-94%, ES-97%, NMS-79%). MS knew significantly more stroke symptoms than ES (p<0.001) and NMS (p<0.001), while ES significantly more than NMS (p< 0.001). In addition, both ES and MS knew more stroke risk factors than NMS (p< 0.001).

Conclusions: Knowledge of the risk factors and symptoms of stroke among young people - non-medical students - is insufficient and should be complemented with an extensive educational program.

Disclosure: Nothing to disclose
EP3211
Microembolic signals detected with transcranial Doppler sonography differ between symptomatic and asymptomatic middle cerebral artery stenoses in northeast China
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Introduction: The clinical significance of microembolic signals (MES) in asymptomatic middle cerebral artery (MCA) stenosis remains unclear at present. We aim to investigate the frequency of MES and the value of MES in predicting ischemic stroke secondary to asymptomatic MCA stenosis.

Methods: From June 2011 to December 2012, microembolus monitoring was performed in 83 asymptomatic and 126 symptomatic subjects with MCA stenosis in The First Hospital of Jilin University.

Results: By comparing the demographics and risk factors between the symptomatic and asymptomatic subjects, we found the ratio of male sexuality and smoking history differed (101/126 vs 43/83, and 88/126 vs 38/83, respectively, p<0.01). The frequency of MES was significantly higher in the symptomatic group than in the asymptomatic group (49/126 vs 2/108, p<0.01). Specifically, the frequency of MES in the symptomatic and asymptomatic groups with mild stenosis, moderate stenosis, severe stenosis and occlusion groups were 4/18 (22.22%) vs 0/30 (0), 13/31 (41.94%) vs 1/28 (3.57%), 30/62 (48.39%) vs 1/39 (2.56%), 2/15 (13.33%) vs 0/11 (0), respectively. Except for the occlusive group, the frequency of MES is correlated with stenosis degree and symptom. Two patients in the asymptomatic group were found positive for MES, and the MES number was 1 for both. During the one-year follow-up, neither of them developed ischemic stroke.

Conclusions: MES detected with TCD differ between symptomatic and asymptomatic MCA stenoses. Due to the low frequency, the value of MES as a predictor of subsequent ischemic stroke in patients with asymptomatic MCA stenosis might be limited.

Disclosure: Nothing to disclose

EP3212
Blocking of TRPM2 channels protects from ischemic neurodegeneration in mice by reducing oxidative stress, blood-brain-barrier damage and inflammation
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Introduction: TRPM2 is a highly Ca2+-permeable member of the transient receptor potential melastatin-related (TRPM) family of cation channels activated under conditions of oxidative and nitrosative stress. TRPM2 is functionally expressed on the surface membrane of blood-borne and CNS-resident cells of the innate immune system and CNS neurons and has thus been implicated in innate immunity and neurodegeneration within the CNS. Thus, we study the role of TRPM2 channels in innate inflammation and neurodegeneration following focal cerebral ischemia in wild-type and trpm2-deficient mice.

Methods: RT-PCR, Western blot, immunocytochemistry, immunohistochemistry, hippocampal neuronal cell culture, brain slice preparations, whole cell patch clamp recording, transient MCA occlusion (tMCAO), flow cytometry.

Results: TRPM2 channels contribute neuronal cell death as well as microglia activation, production of reactive oxygen species and recruitment of neutrophil granulocytes following transient focal cerebral ischemia. Consistently, genetic deficiency and pharmacological inhibition of TRPM2 channels reduce infarct size, cerebral edema and neurological impairment following tMCAO.

Conclusions: We here identify TRPM2 as a key player in stroke pathophysiology. Blocking of TRPM2 could become a novel strategy to achieve neuroprotection in the ischemic brain.

Disclosure: Nothing to disclose
EP3213

Relative risk of ischemic stroke in patients with increased carotid intima-media thickness

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Introduction: Ischemic stroke is a heterogeneous disease, with various etiopathogenic aspects in which atherosclerosis play a crucial role. Common carotid artery intima-media thickness (IMT) is a marker of atherosclerosis. The purpose of our study was the estimation of relative risk of stroke in patients with increased, above normal, carotid IMT.

Methods: In a prospective study 430 patients with ischemic stroke and 177 patients without ischemic stroke hospitalized in Neurology Department of Academic Emergency Hospital Sibiu, Romania was evaluated by cervical ultrasound. We measured carotid IMT bilaterally by B mode ultrasound.

Results: Increased carotid IMT was associated with patient age (p<0.0001), patient gender (p<0.0001), hypertension (p=0.005) and smoking (p=0.02), independent of the presence or absence of stroke, confirming carotid IMT status of independent marker of vascular damage. Each 0.1 mm increase of carotid IMT above the normal produces a proportional increase in the relative risk of stroke between 1.9x and 2.8x (OR=1.92 for the range 0.9-1 mm, OR=1.99 for the range 1-1.1 mm, OR=2.36 for the range 1.1-1.2 mm, OR=2.67 for the range 1.2-1.3 mm, OR=2.79 for the range 1.3-1.4 mm). Carotid IMT increment above the normal value produces an increase of the risk of ischemic stroke by about 3x (OR = 3.0617, 95% CI: 1.635 to 5.733).

Conclusions: Carotid IMT increment above the normal values has positive predictive value of 27.8% for subsequent occurrence of stroke, with a sensitivity of 95.3% and only 13% specificity.

Keywords: atherosclerosis, ischemic stroke, intima media thickness, ischemic stroke risk

Disclosure: Nothing to disclose

EP3214

Relative frequencies of TOAST subgroups are age dependent

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Background: Atherosclerosis, cardiac embolism and small vessel disease are the most common causes of cerebral infarction.

Objective: We hypothesized that the relative frequencies of these causes are age dependent.

Patients and methods: We included all consecutive patients with acute cerebral infarction admitted to the Stroke Unit, Department of Neurology, Haukeland University Hospital between 2006 and 2012. Cause was defined by the Trial of Org 10172 in Acute Stroke Treatment classification (TOAST) criteria comprising large-artery atherosclerosis, cardio-embolism, small vessel disease, other, and unknown. Relative frequencies of TOAST subgroups are displayed by mean of the lowess function. Correlation analyses were performed post hoc based on the lowess analyses.

Results: In total, 2217 patients with acute cerebral infarction were included. Mean age 70.8 Years (SD14.9), 1274 females (57.5%) 943 males (42.5%). 205 patients under 50 years old.

Conclusion: We found that the relative frequencies of TOAST subgroups are age dependent. Cardiac embolism is frequent among the very young and the elderly patients. Atherosclerosis declines among the very elderly. Small vessel disease is most frequent among middle aged patients. This probably reflects different age dependent pathophysiological mechanisms in TOAST subgroups.

Disclosure: Nothing to disclose
EP3215

Prolonged atrial electromechanical interval in patients with cryptogenic stroke

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Introduction: Undetected paroxysmal atrial fibrillation (AF) may be the cause of stroke in cryptogenic stroke. Prolonged atrial electromechanical interval has been known as a predictor of paroxysmal AF. We sought to investigate whether the prevalence of prolonged atrial electromechanical interval suggesting the presence of atrial substrates for paroxysmal AF is higher in patients with cryptogenic stroke.

Methods: Patients with cryptogenic stroke and non-stroke controls matched for age, sex, and risk factors were compared. Atrial electromechanical interval (PA interval) was defined as the time from the initiation of P wave on surface electrocardiogram to the initiation of trans-mitral inflow on pulse wave Doppler echocardiography. The clinical variables, electrocardiographic and echocardiographic findings were compared between the groups.

Results: A total of 260 persons (130 in each group) were analyzed. The PR interval (178±27 vs. 165 ± 27 msec, p<0.001) and PA interval (74±15 vs. 61±13 msec, p<0.001) were longer in cryptogenic stroke group. The body mass index (23±3 vs. 24±3, p=0.043) was lower and mitral E/E’ ratio (8.8±3.0 vs. 8.0±2.6 msec, p<0.001) was higher in cryptogenic stroke group. In multiple logistic regression analysis, prolonged PA interval (Odd ratio [OR], 1.060; 95% confidence interval [CI], 1.035-1.086; p<0.001) and PR interval (OR, 1.019; 95% CI, 1.004-1.034; p=0.011) were independent factors related with cryptogenic stroke.

Conclusions: The atrial electromechanical interval was prolonged in patients with cryptogenic stroke. Our findings suggest that paroxysmal AF may be the underlying cause of stroke in a substantial proportion of cryptogenic stroke.

Disclosure: Nothing to disclose