Mixed Topics 1

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A new method for focal middle cerebral artery occlusion in rats via transfemoral approach

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Background: Middle cerebral artery occlusion in rodent is one of the most practiced model of focal ischemia in a laboratory setting.

Objectives: This study aimed to develop a reliable and repeatable method of inducing focal middle cerebral artery occlusion (MCAo) in rats without ligation of the external carotid artery (ECA), while reducing subarachnoid hemorrhage risk.

Methods: We prototyped microwires with different diameters (0.0120", 0.0115", 0.0110"), materials, and construction methods (coll-on-core, extruded polymer jacket-on-core). Under fluoroscopic guidance and using femoral artery access, the microwires were navigated into the internal carotid artery (ICA) of male Wistar rats (N = 50, weight = 376 ± 64 g) to induce MCAo for 1 and 2 h. We performed neurological assessments at baseline, followed by 3, 24, 72, and 168 h after injury. MRI measurements were performed on a 9.4T scanner at 1 and 7 days post-injury.

Results: The 0.0115" microwire with polymer jacket-on-core provided the most successful outcome. At 1 and 7 days post-injury, we observed similar infarction volumes for 1 and 2 h MCAo in the MRI study. The infarcted lesion volumes in both MCAo groups were significantly reduced at 7 days as compared to 1 day post-injury. Both groups showed similar neurological deficits except at 3 h post-injury.

Conclusions: We have developed a reliable and repeatable MCAo method in rats allowing for precise occlusion of the MCA under direct fluoroscopic visualization without the alteration of cerebral hemodynamics associated with ECA ligation. The custom-designed microwire can be sized for targeted focal ischemia in larger animals as well.

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Prevalence and associated factors of cognitive impairment among retired people living at Parakou in 2014


Background: Neurodegenerative diseases remain an important public health problem because of their social and economic issues. The prevalence of the cognitive impairment increased with age. We aimed to determine the prevalence of cognitive impairment and its associated factors among retired people at Parakou in 2014.

Methods: It was a cross-sectional study carried out from 1st July 2014 to 8th August 2014 and included all people registered at

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Mixed Topics 1
Biomarkers in skeletal muscle rehabilitation in myotonic dystrophy

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Background: Myotonic dystrophy (DM1) is missing useful circulating biomarkers. CK is in fact sometimes normal.

Objective: We aimed to identify microRNAs as biomarkers of DM1 during a rehabilitative protocol consisting of resistance training/functional electrical stimulation (FES) of about one month duration. MicroRNAs are short non-coding RNA molecules with single-stranded sequence involved in many biological processes.

Patients and methods: We investigated serum and muscle microRNAs during a training program to reverse distal muscle atrophy and weakness in a group of genetically defined DM1 patients.

Results: In muscle biopsies of 12 DM1 cases with various histopathological severity, the levels of miR-1 and miR-MiR-133a were significantly decreased while we found increased level of miR-206. In serum, we found increased expression of miR-133a before rehabilitation and reduced expression of all myo-microRNA (miR-1, miR-206, miR-133b, miR-133a) after rehabilitative treatment, which correlated to increased muscle strength and increased distance in the six minute walking test. A reversal of muscle atrophy was observed by muscle MRI.

Conclusion: Micro-RNAs seem to be good serum biomarkers of increased muscle mass and functional response to muscle rehabilitation. MicroRNA might bind to proteins connected with hypertrophy pathways, such as histone deacetylase-4, serum response factors or myo-D, that are linked to myofiber regeneration. We found reduced expression levels of all microRNAs tested after rehabilitation. Since myo-miRNAs have a function in regulation of muscle development and regulation of expression of muscle specific genes, their reduced activity might de-repress biological processes linked to myoblast differentiation, proliferation and myogenesis leading to increased muscle mass.

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Feasibility and reliability of remote telemedical evaluation of athletes with suspected concussion: Addressing gaps in care with teleconcussion

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Background: Although most elite-level athletes have access to providers with concussion expertise, this level of care is uncommon in amateur youth sports. This is concerning as over 7.5 M children in the U.S. participate in high school sports — the majority without access to athletic trainers. As the volume of youth athletes exceeds the number of concussion experts, telemedical concussion evaluations (teleconcussion) may address gaps in care.

Objective: Assess teleconcussion feasibility and accuracy for concussion evaluations.

Methods: Eleven consecutive collegiate football players with suspected concussion were assessed using the Standardized Assessment of Concussion (SAC), King-Devick Test (KD), and modified Balance Error Scoring System (mBESS). A remote neurologist assessed subjects telematically while another provider performed a simultaneous face-to-face assessment. A remove-from-play determination was then made. The remote and face-to-face providers were blinded to each other’s exam findings and remove-from-play decision.

Results: The teleconcussion and face-to-face SAC were in agreement 100% of the time (6/6, 95% CI 54%-100%). Mean difference between remote and sideline KD times was 0.7s (SD 1.4). Remote and face-to-face KD times were within a 3s difference 100% of the time (11/11, 95% CI 72%-100%). Remote and face-to-face mBESS scores were within 3 points 100% of the time (6/6, 95% CI 54%-100%). Remove from play decisions were in agreement 100% of the time (11/11, 95% CI 72%-100%).

Conclusions: This is the first study investigating teleconcussion feasibility for concussion assessments. These data suggest high levels of agreement between remote and a face-to-face providers regarding exam findings and remove from play decisions.
disease: subgroup: >50 categories. Conclusion: Neurological disorders are common in Northern Tanzania and represent a wide range of neurological diseases.

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Cervical myelopathy associated with deep neck muscle rhabdomyolysis after buprenorphine and pregabalin abuse
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Buprenorphine is widely abused in association with pregabalin particularly in Scandinavia. Here we describe six patients who developed cervical myelopathy and rhabdomyolysis after using buprenorphine together with pregabalin and/or other GABAergic drugs. All the patients were young males (age 16–21 years) with a history of substance abuse of several drugs. One to two days before hospital admission they had administered buprenorphine in combination with pregabalin and/or benzodiazepines. The buprenorphine was administered intravenously in five cases and intranasally in one. All patients reported passing out after taking the drugs. After waking up they noticed difficulties in moving their extremities and sought for medical care. In the emergency department, a varying degree of tetraparesis was seen without any signs or anamnesis of trauma. Cerebrospinal fluid analysis showed elevated protein levels and cell count. Serum creatine kinase levels were elevated. MRI-scan of the spinal cord revealed a longitudinally extensive myelopathic lesion of C1–Th3 level associated with rhabdomyolysis in the adjacent, paravertebral deep neck muscles. Myelopathy associated with intoxication and rhabdomyolysis of the deep neck muscles are rare phenomena not usually associated with each other. As the MRI findings in the spinal cord and neck muscles were adjacent to each other, we suggest that a compartment syndrome of the deep neck muscles resulted in venous congestion of the cervical spinal cord causing the myelopathy.

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105 WFN15-1575 Mixed Topics 1
Anterograde amnesia after mild traumatic brain injury: Organic or functional?
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Background: Most psychogenic or functional amnesias are described to be of retrograde nature and involve a preponderant or selective impairment in the episodic autobiographical domain. In contrast, organic amnesias are viewed as inability to consciously acquire new information for long term storage (anterograde amnesia). Herein we challenge the lore that functional anterograde amnesias are "extremely rare" by presenting data from case series.

Patients and methods: Review of literature and data from own patients investigated medically and with neuropsychological and neuroimaging methods.

Results: Functional anterograde amnesia in the absence of significant retrograde memory impairments was found in three patients studied by our group and other three patients were described in the literature in the last 10 years. Most patients with functional amnesia presented with retrograde memory impairments involving the episodic memory domain. Variable degrees of anterograde amnesia (detected by standard anterograde memory tests) however often accompanied retrograde forms of functional amnesia. In patients with dense functional retrograde amnesia but no anterograde memory impairments on standard memory tests, the consciously acquired new memories for long term storage were qualitatively different with respect to emotional colouring in comparison to memories of normal, matched participants.

Conclusion: Our findings suggest that anterograde functional amnesia in the absence of significant retrograde memory impairments or out of proportion in comparison to the retrograde memory impairments may not be so unique and alert to the importance of including this condition in the process of differential diagnosis.

We have obtained patient and/or Institutional Review Board (IRB) approval, as necessary.

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