Topic: 1 - Epilepsy

Abstract—WCN 2013
No: 3
Topic: 1—Epilepsy
Nitrofurantoin-induced life-threatening seizures
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Background: Nitrofurantoin (NF) is a widely used antibiotic, used for treatment of cystitis caused by Escherichia coli (EC). With MEDLINE search we found no reports on seizures in patients treated with NF.

Objective: Drug-induced life-threatening seizure and discussion to avoid fatal outcome are reviewed.

Patients and methods: We report the case of an 87-year-old Slovenian female who was admitted in 2012 to a psychiatric department because of dementia. Her past history was unremarkable. She had no known history of seizures. Baseline laboratory results collected on admission were normal. Rivastigmine transdermal patch was introduced. After 10 days in hospital, patient was treated with NF 200 mg daily because of lower urinary infection with EC.

Results: After 3 days of treatment with NF seizures (grand mal) and convulsions were observed first time, consequently midazolam was introduced. Next morning patient was transferred to the Department of Internal Medicine. During transportation, seizures with convulsions occurred and patient received midazolam and oxygen immediately. NF was withdrawn from therapy and switching to amoxicillin and clavulanic acid 2 g daily was introduced. After seizures, laboratory tests results of serum electrolytes were as follows: hyponatremia (Na 110 mmol/L) with low plasma osmolarity and elevation of urinary sodium and urinary osmolarity. A normal baseline laboratory results were determined and polyuria was noted. Patient left hospital 2 weeks later with no symptoms of EC urinary infection and psychical status normalized.

Conclusion: NF-induced acute hyponatremia leading to seizures is seen rarely. Early psychiatric evaluation and another antimicrobial agent should be used in elderly psychiatric patients with lower urinary tract infections.

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Abstract—WCN 2013
No: 30
Topic: 1—Epilepsy
Vagus nerve stimulation in 5 patients with drug-resistant epilepsy in western China
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Purpose: This study was designed to assess the efficacy and safety of vagus nerve stimulation in adults with drug-resistant epilepsy.

Methods: In this retrospective review, a database was prospectively created with 5 patients from western China, who underwent vagus
implementation of anticipatory care have changed the standard of care, with an overall improvement quality of life of patients.

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Abstract — WCN 2013
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Topic: 7 — Neuromuscular disorders
FGF21: A biomarker of neuromuscular diseases

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Background: Human fibroblast growth factor 21 (FGF21) is a 181 amino acid protein that belongs to the human FGF superfamily. The basic biological role of FGF21 is the regulation of the glucose and lipid metabolism.

Objective: Recently two observations were published where they showed elevated circulating FGF21 in human mitochondrial diseases, therefore it was suggested that FGF21 might be a biomarker of mitochondrial diseases.

Patients and methods: The serum level of FGF21 was determined by ELISA in blood samples from 20 healthy subjects, 15 patients with myotonic dystrophy type 1 (MD1) and 25 patients with mitochondrial diseases.

Results: Among healthy subjects serum FGF21 correlated with body mass index (BMI). Mean FGF21 level was significantly raised in MD1 compared to healthy subjects (424 ± 328 and 207 ± 165 pg/ml, respectively, p < 0.05, Mann–Whitney U test). Among mitochondrial patients FGF21 was elevated only in PEO (progressive external ophthalmoplegia) group (589 ± 496 pg/ml, p < 0.05, Mann–Whitney U test), but was not significantly altered in MELAS and myopathy patients. FGF21 correlated with serum creatine kinase (CK) and lactate levels, with clinical severity score as well as some biopsy findings (e.g. ratio of ragged red fibers and mitochondrial inclusions).

Conclusion: Our study implicates that serum FGF21 might be a biomarker for neuromuscular disorders. In contrast to the previous findings our results showed that elevation of FGF21 is not specific and not restricted to mitochondrial disorders. Further research is necessary to find out what neuromuscular disease groups are associated with abnormal FGF metabolism and to investigate the molecular pathomechanism.


Abstract — WCN 2013
No: 2517
Topic: 7 — Neuromuscular disorders
Complex chromosomal rearrangements in a patient with oligozoospermia and Charcot–Marie–Tooth disease

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Background: Complex chromosomal rearrangements (CCR) occurring in phenotypically normal persons are rare, about 255 cases have been reported. Most familial cases have a normal phenotype with apparently balanced rearrangements while de novo cases usually are unbalanced or apparently balanced but with associated multiple anomalies as well as mental retardation.

Material and methods: A couple with fertility problems was investigated. He had oligozoospermia and Charcot–Marie–Tooth disease.

Results: Chromosomal analysis and fluorescence in situ hybridization with whole chromosome paint revealed that he had apparently balanced translocation between chromosome 2, 7 and 14. Array comparative genomic hybridization was normal.

Conclusion: To our knowledge, this is a new case of CCR identified in the human population and for the first time a CCR is identified in a patient with CMT.

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Abstract — WCN 2013
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Topic: 7 — Neuromuscular disorders
Global proprioceptive resonance: Effects on neuromuscular and postural systems

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Background: The application of mechanical multifocal vibration (MFV) at targeted frequencies and short duration produces positive effects on bone structure, muscles and joints regulating neuromuscular response.

Objective: The purpose of this study was to investigate the effects of the global proprioceptive resonance (GPR) by MFV on muscle performance and body balance in healthy subjects.

Materials and methods: Sixty volunteers (26 males and 24females, aged 19–25 years) underwent, in a randomized order, both the electromyography–electrognatography (EMG–EGN) and stabilometry before the GPR and immediately after it. GPR was the ergonomic structure used in this protocol: it gives a psycho-physical release thanks to multifocal vibrations.

Results: The effects of GPR on the surface EMG of masseters and anterior temporalis muscles did not induce any statistically significant change, except for masseter muscles (p < 0.05). The results showed a significant improvement in the neuromuscular activity. Muscular activity mainly decreased, while the Freeway Space increased in 53% of cases: this was the evidence of a muscular release after GPR. From a postural point of view, there was an improvement in the load distribution and in the position of the barycenter according to the ideal axis. There were effects in body balance tests, too (p < 0.05).

Conclusions: In this preliminary study it was concluded that the GPR induced changes both in neuromuscular and in postural tests. Further and future studies should focus on evaluating the effects on orthodontic and temporomandibular disease patients, as well as the long term effects.


Abstract — WCN 2013
No: 2519
Topic: 7 — Neuromuscular disorders
Prevalence of neuromuscular disorders in Italian Navy scuba divers: Personalized vs standard mouthpiece

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Background: Scuba divers deal with an extreme psychophysical effort during their activities showing neuromuscular, postural and craniofacial disorders.

Objective: The aim is to determine the prevalence of temporomandibular disorders and the neuromuscular system variations in scuba divers of the Italian Navy with commercial (CM) and personalized