**Background:** Neuropathic pain is fairly common in diabetics. Their epidemiology is poorly understood in Benin.

**Objectives:** To study the frequency of neuropathic pain among diabetics in Parakou in 2014.

**Methods:** A Cross-sectional study was carried out and included 280 diabetics in Parakou diabetes unit. All subjects were examined by a physician and diagnostic DN4 tool was used to define the neuropathic component of pain (Score DN > 4). The DNS (Diabetic Neuropathy Score) was used to screen sensory neuropathy (DNS Score > 1).

**Results:** They had a mean age of 55.3 +/- 11.3 years with 60% women. The mean duration of diabetes was 73.5 months +/- 70.6 months. Among them 204 had a DNS > 1, the overall frequency of sensory neuropathy was 72.9%. Among the 134 diabetics with pain 95 had DN4 score > 4 with the neuropathic pain frequency of 33.9% and 87 (91.6%) of them suffered more than 3 months. The main associated factors with neuropathic pain were duration of diabetes, history of head trauma, level of glycaemia, obesity, the presence of diabetic foot.

All subjects with neuropathic pain also have a sensory neuropathy. The most common characteristics of pain were burns (90.5%), tingling (88.4%), numbness (83.2%) and tingling (82.1%). The pain was moderate to very severe in 44.2%.

**Conclusion:** Neuropathic pain is more frequent among diabetics especially in those with sensory polyneuropathy and related to poor control of disease.

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showed that one third of the patients feels pain relief and wants to continue the treatment.

**Objective:** This study was purposed to assess the effect on other qualities of life besides pain relief. We used the Dolo-test, a VAS questionnaire of eight closely related parameters: Pain, problem with light and more strenuous physical activities, job problems, reduced energy and strength, low spirit, reduced social life, sleep problems.

**Methods:** Patients getting LDN made the Dolo-test before and after 2-6 months of treatment. The changes in VAS were registered. A total of 26 patients who stayed on LDN not starting any new medical treatment during the period were included.

**Results:** The mean percentage reduction in VAS was calculated: Pain: 17%; problems with light physical activities: 12%; strenuous physical activities: 10%; job problems: 8%; reduced energy and strength: 23%; low spirit: 13%; reduced social activity: 15%; sleep problems: 12%.

**Conclusion:** Why many patients feel better with LDN may have several reasons as this study indicates. In addition to pain relief especially in getting more energy and strength seems important. This parameter for quality of life actually had the very highest change in score, even higher than pain.

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**1217**

**WFN15-0061**

**Pain**

**Lercanidipine alleviates hyperalgesia and allodynia in Rodent Model of paclitaxel induced neuropathy**

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**Objective:** Abnormal activation of calcium channels have been implicated in the development of paclitaxel induced neuropathy. The effect of Lercanidipine (L-type calcium channel blocker) on paclitaxel induced neuropathic pain was evaluated in rats.

**Materials and methods:** Twenty four Wistar rats were used (paclitaxel + saline and paclitaxel + lercanidipine in three doses). Paclitaxel (2 mg/kg) and graded doses of lercanidipine (0.5, 1 and 2.5 mg/kg) were administered. Paclitaxel was administered intraperitoneally on days 1, 3, 5 and 7 and lercanidipine was administered from day 1 to day 10. Animals were assessed for mechanical allodynia and hyperalgesia at baseline, 14th, 21st and 28th day using 4 g and 15 g Von Frey monofilament respectively. Cold allodynia was assessed by tail withdrawal response to cold water at 4degreeC. Axonal structure was evaluated with light and electron microscopy.

**Results:** Paclitaxel produced significant mechanical hyperalgesia and cold allodynia. The mean % paw withdrawal response to 4 g Von Frey monofilament appeared from day 7 (5.7 ± 6.8) increasing to 40.3 ± 9.7 on day 28 (p ≤ 0.002) and to 15 g monofilament, it increased from 15.2 ± 6% at baseline to 76.4 ± 14.3% on day 28. Paclitaxel produced a reduction in tail withdrawal response time to cold water from 16.3 ± 1.6 s at baseline to 10.3 ± 0.8 s on day 28. Lercanidipine delayed the onset and reduced the severity of mechanical allodynia and hyperalgesia but failed to protect the animals from development of cold allodynia. The proportion of animals which showed axonal degeneration was less in lercanidipine group compared to paclitaxel group (5/9 vs 9/9).

**Conclusion:** Lercanidipine ameliorated paclitaxel induced neuropathic pain in rats.

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**1218**

**WFN15-1126**

**Pain**

**Pain assessment: comparison of the modified pain disability index and Box 21 pain measures in a pediatric neurofibromatosis-1 population**

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**Objective:** Why many patients feel better with LDN may have several reasons as this study indicates. In addition to pain relief especially in getting more energy and strength seems important. This parameter for quality of life actually had the very highest change in score, even higher than pain.

**Materials and methods:** Children (173 NF-1 patients age 6-17) in this IRB-approved study self-reported measures of the modified PDI, assessing pain-related disability in 7 areas of function. The PDI assessed current pain severity and worst, least, and usual pain over the previous week. To evaluate construct validity, PedsQL assessed overall QOL and 4 QOL domains (physical, emotional, social, school). Wong-Baker Faces of Pain scale (for children) was also completed. Pain Drawings indicating location/extent of pain provided percent body surface involved. Correlational analyses examined reliability (coefficient alpha) and validity associations (Spearman rho) between Ped-PDI and BS-21 and other measures.

**Results:** 78.6% of subjects reported pain; severity, disability, and extent were relatively low. Correlations ≥ 0.24 were significant at or below a p-value of .001. Internal consistency reliability of the Ped-PDI was 0.91. Ped-PDI correlated well with PedsQL (0.40 social, 0.61 physical and overall), with Faces scale and with pain extent. Internal consistency reliability of BS-21 was 0.86. BS-21 correlation with PedsQL was 0.47 and with Ped-PDI was 0.65. Though Ped-PDI and BS-21 yielded positively skewed distributions, Pearson correlations yielded ≥ 0.10 compared to Spearman, mean = 0.6.

**Discussion:** Our results support the reliability and construct validity of the Ped-PDI and BS-21 when used in pediatric NF-1.

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**1219**

**WFN15-0845**

**Pain**

**Nerve Conduction Studies (NCS) in Patients with Central (CNS) and Peripheral (PNS) Nervous System Diseases with and without Neuropathic Pain (NP)**

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I. Sazunic,
E. Mullins

**Background:** The diagnostic yield of NCS in CNS or PNS NP has not been systematically studied.

**Objectives:** To compare the diagnostic yield of NCS in CNS and PNS disease with and without NP.
**Methods:** Sensory NCS: sural, median, ulnar and radial. Motor: median, ulnar, peroneal and posterior tibial, F waves and H reflex. Contact heat evoked potentials (Cheps, Medoc) & SSEPs to painful stimulation are described elsewhere. Mean age 53.9 ± SD (range 22-83 years) Males = 48 Females = 43. PNS divided into polyneuropathies (PNP) and focal PNS involvement (OPN). Groups subdivided in with (+) and without (-) NP.

**Results:** NCS showed in PNP (+): 24 sensori motor, 8 normal. PNP (-): 12 sensorimotor, 4 normal. OPN (+): 5 mononeuropathies, 3 radiculopathies, 1 plexopathy, 2 normal. OP (-): 2 mononeuropathy, 1 normal. CNS (+): 1 sensori motor PNP, 4 OPN, 11 normal. CNS (-): 2 sensorimotor, 2 OPN, 9 normal.

No significant differences (Fisher’s exact test) between with, versus without, NP in the proportions of PNP, OPN, CNS and normal findings overall, nor within the PNS sub groups. 70% of PNP were sensorimotor. In 10 (7 with NP) of 16 patients with PNS and normal conduction findings, SSEPs or Cheps, were abnormal. NCS identified 9/29 CNS patients with unsuspected PNS pathology, five of them with NP.

**Conclusions:** Patients with and without NP had similar proportions of PNS and CNS NCS findings. The majority of PNP’s with NP were sensorimotor. The majority of small fibre PNP were identified by CHEPS or SSEPs to painful stimuli. Nerve conduction studies are indicated in patients with NP.

**Conclusion:** Ketamine and ketorolac carry the same analgesic efficacy in preventing tourniquet induced haemodynamic changes related to pain.

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**1220**

**WFN15-0688**

**Pain**

**Comparison of the effect of analgesic-dosages of ketamine and ketorolac in preventing tourniquet-induced pain in orthopedic patients under general anaesthesia**

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**Background:** Tourniquet induced pain is one of the challenging issues in orthopedic surgeries requiring bleeding control. Different analgesic regimens have been tried to control such pain, but none has been declared definitive. The aim of this study was to compare the efficacy of analgesic dose Ketamine and Keltorolac in preventing tourniquet-induced pain in Orthopaedic patients under general anaesthesia.

**Material and methods:** This study was conducted in Holy Family Hospital Rawalpindi. 110 patients fulfilling the inclusion criteria were selected in the study by non-probability consecutive sampling. Patients aged 14-60 years, ASA class I/II, requiring General anaesthesia for various different lower limb orthopaedics surgery procedures and tourniquet inflation for at least 60 minutes were recruited. They were divided into two equal groups by random selection of patients via lottery method. Group A comprised of 55 patients in whom intravenous low dose ketamine (0.1 mg/kg) was given after induction of anesthesia and before (10 mins) inflation of tourniquet. Group B received ketorolac (0.5 mg/kg). Systolic (SBP) and Mean blood pressures (MAP) were observed in both groups via non invasive blood pressure (NIBP) technique after inflation of tourniquet till sixty minutes of inflation. All the data was analyzed by SPSS version 16.

**Results:** It was observed that 29.1% patients of group A (ketamine) had tourniquet induced hypertension (TIH) as compared to 41.8% patients of group B (ketorolac). The difference was statistically insignificant (p = 0.163). Incidence of TIH was observed to be more in female gender than in male (44.73% vs 30.55%) and more in ASA-II patients than ASA-I patients (42.85% vs 32.92%) but statistically those were also found to be insignificant.

**Conclusion:** Ketamine and ketorolac carry the same analgesic efficacies in preventing tourniquet induced pain, but statistically incidence of TIH was observed to be more in female gender and less in ASA-I patients than ASA-II patients.

**Keywords:** pain, anaesthesia, ketamine, ketorolac, tourniquet-induced pain

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anatomical visualization of the ulnar nerve, either in the cubital region or in the Guyon canal, it is decompressed. Two weeks postoperative immobilization of the arm is recommended.

**Results:** Patients felt an immediate postoperative symptoms relief. Postoperative follow-up revealed return to normal function. Postoperative physical rehabilitation is mandatory.

**Conclusion:** Authors recommend the ulnar nerve surgical decompression in all cases diagnosed by physical examination or/and EMNG.

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**1223**

WFN15-0084

Pain

Impact of pain on quality of life and the occurrence of anxiety and depressive symptoms in patients with multiple sclerosis


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Pain is one of the most frequently reported symptoms of multiple sclerosis (MS). It affects the daily functioning, limits the work ability, reduces the joy of life.

**Aim:** Prevalence of pain in MS and its impact on quality of life, symptoms of anxiety and depression.

**Material and methods:** The study included 144 MS patients (mean age 41 +/-12 years, mean disease duration 7.4 +/-7.2 years). It was conducted on the basis of the author's survey on current and previous pain, EuroQol 5D quality of life self-esteem questionnaire and The Hospital Anxiety and Depression Scale (HADS). An Institutional Review Board have waived the requirement for their formal approval of the study.

**Results:** Among all respondents, 117 people (81.3%) reported current pain, and 120 patients (83.3%) - the occurrence of pain in the past. Currently, patients have reported: pain in one or more extremities-79 people (54.9%), headache and facial pain-72 (50%), back pain-72 (50%), painful muscle spasms-54 (38.6%), pain in eyeball-37 (25.7%), Lhermitte's sign-32 (22.2%). Patients who reported pain significantly more frequently experienced symptoms of anxiety (p<0.01) and depression (p<0.01), and had significantly worse quality of life (p<0.01). An association between presence of pain and gender (p<0.01), age (p<0.05), disease duration (p<0.001), the degree of disability (p<0.05), and the presence of a job (p<0.01) was found.

**Conclusion:** Pain in MS patients is associated with anxiety and depression, and worse quality of life. Female sex, older age, longer disease duration, greater disability, and lack of occupational work predispose to the occurrence of pain in MS patients.

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**1224**

WFN15-0498

Pain

Multicolumn spinal cord stimulation in failed back surgery syndrome: design of a national, multicentre, randomized, controlled health economics trial (Estimet Study)

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Background/objective: Many studies have demonstrated the efficacy of SCS for chronic neuropathic radicular pain over recent decades. But despite global favourable outcomes in FBSS with leg pain, the back pain component remains poorly controlled by neurostimulation. The efficacy of multicolumn SCS lead configurations for the treatment of the back pain component of FBSS has recently been suggested by pilot studies. However, a randomized controlled trial must be conducted to confirm the efficacy of new generation multicolumn SCS. ESTIMET is a multicentre, randomized study designed to compare the clinical efficacy and health economics aspects of mono vs multicolumn SCS lead programming in FBSS patients with radicular pain and significant back pain.

**Materials/methods:** FBSS patients with a radicular pain VAS score ≥ 50 mm, associated with a significant back pain component were recruited in 14 centres in France and implanted with multicolumn SCS. Before the lead implantation procedure, they were 1:1 randomized to monocolumn SCS (only one column, group 1) or multicolumn SCS (full use of the 3 columns, group 2). Outcome assessment was performed at pre-implantation, and 1, 3, 6 and 12 months post-implantation. The primary outcome measure was a reduction of the severity of low back pain (bVAS reduction ≥ 50%) at the 6-month visit. Additional outcome measures were changes in global pain, leg pain, paraesthesia coverage mapping, functional capacities, quality of life, neuropsychological aspects, and healthcare resource consumption.

**Results:** Preliminary results are expected to be published in 2015.

**Conclusion:** Trial recruitment is completed since October 2013.

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**1225**

WFN15-0499

Pain

Subcutaneous peripheral nerve stimulation as “Hybrid Stimulation” after failure of SCS to control the back pain component in FBSS patients

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**Background:** Despite globally favourable outcomes of SCS, a significant proportion of FBSS patients do not obtain adequate coverage of low back pain. PNS has obtained the CE mark in Europe for the treatment of chronic refractory neuropathic pain and is now commonly used in some countries to target back pain. However, the potential value of combining SCS and PNS as “hybrid stimulation” remains poorly described with only isolated case reports or limited experience in various indications.

The ‘CUMPNS’ comparative randomized study is designed to demonstrate the potential analgesic efficacy of PNS in addition to previously implanted SCS, to treat the residual back pain component in refractory FBSS patients.

**Materials/methods:** All patients are randomized 1:1 in to 2 groups(SCS + PNS vs SCS). Group 1(SCS + PNS) receives "hybrid stimulation" with PNS implantation one month after the inclusion
visit. In the second group, patients continue to be treated with SCS alone for 4 months post-inclusion before having access to PNS.

The main objective of this study is to demonstrate the added value of subcutaneous PNS by comparing the ability of hybrid stimulation (SCS + PNS) versus SCS alone to improve analgesic efficacy, functional outcome on quality of life and coverage of the residual low back pain component at three months. This variation in the pain surface area covered is evaluated by mapping, using the Neuro-Mapping Tools (N3MT) software.

**Results:** Recruitment in the CUMPNS trial began in February 2013. The inclusion period will end in February 2015.

**Conclusion:** Primary endpoint findings will be available at the end of 2016. Aided by mapping, using the Neuro-Mapping Tools (N3MT) software.

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1226
WFN15-0501
Pain
A prospective study evaluating sleep quality in failed back surgery syndrome patients treated by multicolumn spinal cord stimulation: study design protocol


**Background:** One of the main consequences of a chronic pain syndrome is major impairment of the quality of sleep. Chronic pain and insomnia are independently linked to significant reductions in quality of life and psychiatric morbidity. Recent studies have suggested the efficacy of SCS for the treatment of the back pain component in FBSS patients using a multicolumn lead. The main objective of this pilot study is to assess the influence and potential benefits of SCS on sleep quality in refractory FBSS patients implanted with multicolumn SCS and enrolled in the French multicentre ESTIMET study.

**Methods:** This is a single-centre, comparative, exploratory, pilot study. Sixteen FBSS patients enrolled implanted with multicolumn SCS will be followed for 6 months after implantation (PSG, VPT, Oesler tests, actigraphy, sleepiness scales, and sleep quality testing). Sleep will be evaluated before (at the inclusion visit) and after SCS implantation (at the 6-month visit). Secondary objectives will also assess the impact of SCS lead programming and the influence of position-adaptive stimulation at night on sleep quality.

**Results:** The recruitment is now achieved. Primary endpoint findings are expected to be available in 2015.

**Conclusion:** By providing an analysis of the quality of sleep in chronic pain patients who are candidates for implanted neurostimulation, this new approach focuses on an important aspect of quality of life often overlooked in these poly-medications patients. It could show a real clinical benefit and underestimated of these analgesic innovative expensive techniques, in which medico-economic analysis, would promote access or not.

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1227
WFN15-0894
Pain
Consumption of hydrogen water prevents the occurrence of neuropathic pain in mice

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**Background:** Neuropathic pain remains intractable and the development of new therapeutic strategies are urgently required. Accumulating evidence indicates that overproduction of oxidative stress is a key event in the pathogenesis of neuropathic pain. However, repeated intraperitoneal or intrathecal injections of antioxidants are unsuitable for continuous use in therapy.

**Objective:** Here we investigate a novel therapeutic method against neuropathic pain: drinking water containing molecular hydrogen (H₂) as antioxidant.

**Material and methods:** The effect of hydrogen on neuropathic pain was investigated using a partial sciatic nerve ligation model in mice. As indicators of neuropathic pain, temporal aspects of mechanical allodynia and thermal hyperalgesia were assessed for 3 weeks after ligation. Mechanical allodynia and thermal hyperalgesia were measured using the von Frey test and the plantar test, respectively.

**Results:** When mice were allowed to drink water containing hydrogen at a saturated level ad libitum after ligation, both allodynia and hyperalgesia were alleviated. These symptoms were also alleviated when hydrogen was administered only for the induction phase (from day 0 to 4 after ligation). When hydrogen was administered only for the maintenance phase (from day 4 to 21 after ligation), hyperalgesia but not allodynia was alleviated. Immunohistochemical staining for the oxidative stress marker, 4-hydroxy-2-nonenal and 8-hydroxydeoxyguanosine, showed that hydrogen administration suppressed oxidative stress induced by ligation in the spinal cord and the dorsal root ganglion.

**Conclusion:** Oral administration of hydrogen water may be useful for alleviating neuropathic pain in a clinical setting.

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1228
WFN15-1350
Pain
Interaction of hydroalcoholic extract of ginger and intracerebroventricular injection of bromocriptine and chlorpromazine on pain sensitivity in male rat

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**Background:** Administration of Ginger (Zingiber officinale) root extract caused significant increase in dopamine content of various brain areas. The anti-nociceptive effect of hydroalcoholic extract of ginger was investigated. On the other hand, D2 agonist quinpirole increased the antinociceptive effect of morphine. Objective: the aim of present study was to investigate the interaction of hydroalcoholic extract of ginger and bromocriptine (D2 receptor agonist) and chlorpromazine (D2 receptor antagonist) on pain sensitivity in formalin test.

**Material and methods:** Forty eight adult male rat in standard conditions were used. Rats were divided to following groups: Control (intact rats); sham 1 (received oral administration of water 0.4 ml for 15 day); sham 2 (received 4 μl ACSF); experimental 1 (received oral administration of ginger 50 mg/kg/day for 15 day); experimental 2 and 3 (received bromocriptine 10 and 30 μg/rat after ginger similar to experiment1) and experimental 4 and 5 (received chlorpromazine 20 and 40 μg/rat similar to experiment1). Lateral ventricle was cannulated unilaterally by...
stereotaxic procedure. Pain sensitivity tests were done by formalin test. **Results:** present data showed that ginger significantly decreased pain sensitivity. Both bromocriptine (10 and 30 μg/rat) and chlorpromazine (20 and 40 μg/rat) significantly (P < 0.05) decrease pain sensitivity in first and second phase of formalin test, after 15 days oral administration of ginger (50 mg/kg/day).

**Conclusion:** It seems that in the present of ginger dopamine agonist and antagonist had the same effect, so the analgesic effect of ginger was more potent than hyperalgesic effect of chlorpromazine.

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