Mechanisms of pain and itch caused by herpes zoster (shingles).

Oaklander AL.

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Study of humans with shingles or postherpetic neuralgia (PHN) is providing insights into pain mechanisms. Shingles pain is a combination of normal and neuropathic pain that reflects acute tissue and neural injury. PHN pain, which lasts after tissues have healed, is caused by persistent neural injuries. Spontaneous C-nociceptor activity has been documented in painful polyneuropathies and probably occurs in shingles as well, although there are no microneurographic studies of either shingles or PHN. It is uncertain if this persists in PHN since pathological examination of PHN-affected nerves and ganglia show chronic neuronal loss and quiescent scarring without inflammation. Skin-biopsy study has correlated the presence of PHN with the severity of persistent distal nociceptive axon loss, and autopsy has correlated pain persistence with segmental atrophy of the spinal cord dorsal horn, highlighting the importance of central responses to nerve injury. Pathological studies of tissues from patients with trigeminal neuralgia suggest that brief lancinating pains reflect ephaptic neurotransmission between adjacent denuded axons. The mechanisms of chronic spontaneous pain and mechanical allodynia remain uncertain despite considerable indirect evidence from animal models. Postherpetic itch is presumably caused by unprovoked firing of the peripheral and/or central neurons that mediate itch. If it occurs in neurons innervating skin left severely deafferented from shingles ("numb"), patients can give themselves painless injuries from scratching. Further human study, by electrophysiological recording, by structural and functional imaging, and by autopsy, should continue to provide much-needed insights.
PERSPECTIVE: Many patients continue to have chronic pain and/or itch after shingles that is unrelieved by current treatments. Many will gladly volunteer for clinical studies, including autopsy, to try and improve understanding of these common and disabling conditions. Their prevalence makes highly powered studies feasible. Funding and organization are the current bottlenecks.

Quality of life, resource consumption and costs of spinal cord stimulation versus conventional medical management in neuropathic pain patients with failed back surgery syndrome (PROCESS trial).

Manca A, Kumar K, Taylor RS, Jacques L, Eldabe S, Meglio M, Molet J, Thomson S, O'Callaghan J, Eisenberg E, Milbouw G, Buchser E, Fortini G, Richardson J, Taylor RJ, Goeree R, Sculpher MJ.

Eur J Pain. 2008 Mar 20.

BACKGROUND: Chronic back and leg pain conditions result in patients' loss of function, reduced quality of life and increased costs to the society. AIMS: To assess health-related quality of life (HRQoL) and cost implications of spinal cord stimulation plus non-surgical conventional medical management (SCS group) versus non-surgical

conventional medical management alone (CMM group) in the management of neuropathic pain in patients with failed back surgery syndrome.

METHODS: A total of 100 patients were randomised to either the SCS or CMM group. Healthcare resource consumption data relating to screening, the use of the implantable generator in SCS patients, hospital stay, and drug and non-drug pain-related treatment were collected prospectively. Resource consumption was costed using UK and Canadian 2005-2006 national figures. HRQoL was assessed using the EuroQol-5D (EQ-5D) questionnaire. Costs and outcomes were assessed for each patient over their first 6-months of the trial.

RESULTS: The 6-month mean total healthcare cost in the SCS group (CAN$19,486; euro12,653) was significantly higher than in the CMM group (CAN$3994; euro2594), with a mean adjusted difference of CAN$15, 395 (euro9997) ($p<0.001$). However, the gain in HRQoL with SCS over the same period of time was markedly greater in the SCS group, with a mean EQ-5D score difference of 0.25 [$p<0.001$] and 0.21 [$p<0.001$], respectively at 3- and 6-months after adjusting for baseline variables.

CONCLUSIONS: The addition of SCS to CMM in patients with neuropathic leg and back pain results in higher costs to health systems but also generates important improvements in patients' EQ-5D over the same period.

Ultrasound-guided interventional procedures for patients with chronic pelvic pain - a description of techniques and review of literature.

Peng PW, Tumber PS.

Pain Physician. 2008 Mar;11(2):215-24.

Chronic pelvic pain can present in various pain syndromes. In particular, interventional procedure plays an important diagnostic and therapeutic role in 3 types of pelvic pain syndromes: pudendal neuralgia, piriformis syndrome, and "border nerve" syndrome (ilioinguinal, iliohypogastric,and genitofemoral nerve neuropathy). The objective of this review is to discuss the ultrasound-guided approach of the interventional procedures commonly used for these 3 specific chronic pelvic pain syndromes. Piriformis syndrome is an uncommon cause of buttock and leg pain. Some treatment options include the injection of the piriformis muscle with local anesthetic and steroids or the injection of botulinum toxin. Various techniques for piriformis muscle injection have been described. CT scan and EMG-guidance are not widely available to interventional physicians, while fluoroscopy exposes the performers to radiation risk. Ultrasound allows direct visualization and real-time injection of the piriformis muscle. Chronic neuropathic pain arising from the lesion or dysfunction of the ilioinguinal nerve, iliohypograstric nerve, and genitofemoral nerve can be diagnosed and treated by injection to the invloved nerves. However, the existing techniques are confusing and contradictory. Ultrasonography allows visualization of the nerves or the structures important in the identification of the nerves and provides the opportunities for real-time injections. Pudendal neuralgia commonly presents as chronic debilitating pain in the penis, scrotum, labia, perineum, or anorectal region. A pudendal nerve block is crucial for the diagnosis and treatment of pudendal neuralgia. The pudendal nerve is located between the sacrospinous and sacrotuberous ligaments at the level of ischial spine. Ultrasonography, but not the conventional fluoroscopy, allows visualization of the nerve and the surrounding landmark structures. Ultrasound-guided techniques offer many advantages over the conventional techniques. The ultrasound machine is portable and is more readily available to the pain specialist. It prevents patients and healthcare professionals from the exposure to radiation during the procedure. Because it allows the visualization of a wide variety of tissues, it potentially improves the accuracy of the needle placement, as exemplified by various interventional procedures in the pelvic regions aforementioned.

Pregabalin in the Treatment of Refractory Neuropathic Pain: Results of a 15-Month Open-Label Trial.

Stacey BR, Dworkin RH, Murphy K, Sharma U, Emir B, Griesing T.

Pain Med. 2008 Mar 11.

Objective: Neuropathic pain associated with postherpetic neuralgia (PHN) and painful diabetic peripheral neuropathy (DPN) can be intractable and may not respond to commonly used treatments, such as tricyclic antidepressants (TCAs) and opioids. This long-term, open-label study was a preliminary evaluation of pregabalin for patients whose pain had been judged refractory to other treatments for neuropathic pain.

Design: Patients had previously participated in double-blind, placebo-controlled, randomized trials of pregabalin in DPN and PHN. They had moderate to severe neuropathic pain despite treatment with gabapentin, a TCA, and a third medication (e.g., other anticonvulsants, opioid, selective serotonin reuptake inhibitor, tramadol). Flexible-dosage pregabalin 150-600 mg/day was taken for 3-month periods followed by 3- to 28-day pregabalin "drug holidays," with an analysis up to 15 months (five treatment cycles). Pain intensity was measured using the visual analog scale of the Short-Form McGill Pain Questionnaire.

Results: In total, 81 patients were included in this analysis. Pregabalin 150-600 mg/day was associated with clinically meaningful and sustained pain reduction during each treatment cycle. During pregabalin "drug holidays," pain quickly returned to baseline levels; it was reduced again when pregabalin was reinstated.

Conclusions: These results suggest that pregabalin may be beneficial in patients with neuropathic pain who have had an unsatisfactory response to treatment with other medications.

Side effects of ketamine in the long-term treatment of neuropathic pain.

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OBJECTIVES: Ketamine, noncompetitive antagonist of N-methyl-D-aspartate (NMDA) receptors, has been used in the treatment of chronic neuropathic pain for almost 15 years. The aim of the study was to describe and evaluate side effects of this drug in the group of 32 patients with diabetic polyneuropathy and with postherpetic neuralgia.

DESIGN AND PATIENTS: In total, 32 patients with postherpetic neuralgia and diabetic polyneuropathy were enrolled into our prospective study. The side effects were divided in two groups. First, the side effects observed within 30 minutes lasting intravenuous infusion of 10 mg of ketamine in 100 mL of normal saline. Second after 3 months of peroral treatment of 30 mg of ketamine five times daily.

RESULTS: Sedation was observed in 15.6% of patients after the initial infusion and in 19% of patients in the course of the subsequent oral therapy. In total, 44% (infusion) and 22% (oral administration) of patients reported dizziness. A total of 25% of patients complained about drowsiness and 19% of patients reported dry mouth during oral therapy. In the observed 3-month treatment period, five patients (15.6%) withdrew from the treatment due to a failure of therapy and four patients (12.5%) due to untolerated side effects (dizziness, sedation, loss of appetite, nausea, and vomiting).

CONCLUSIONS: Ketamine is evaluated as a nonoptimal, however, available NMDA blocker suitable for clinical use. Studying its effects in clinics can be expected to increase our knowledge necessary for the development of new, effective, and safe "antineuralgic drug."

Can the neuropathic pain scale discriminate between non-neuropathic and neuropathic pain?

Fishbain DA, Lewis JE, Cutler R, Cole B, Rosomoff HL, Rosomoff RS.

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OBJECTIVES: 1) To determine if the neuropathic pain scale (NPS) can be used to classify chronic pain patients (CPPs) as having primarily neuropathic vs non-neuropathic pain, and furthermore; 2) to determine what, if any, cut-off score can be used to reliably make this determination.

DESIGN: A total of 305 CPPs consecutive admissions to The Rosomoff Pain Center were administered the NPS and were assigned a diagnosis according to the physical examination and all available test results. CPPs with a diagnosis of chronic radiculopathy and spondylolysis/degenerative arthritis were segregated into two groups for the purposes of having a group representative of neuropathic pain (chronic radiculopathy) and non-neuropathic pain (spondylolysis/degenerative arthritis). Applying neuropathic pain criteria to each "of these two groups": a neuropathic pain "subtype" was identified within the chronic radiculopathy group; and, a non-neuropathic pain "subtype" was identified within the spondylolysis/degenerative arthritis group. This step was performed in order to assure that the CPPs selected for further analysis were truly representative of neuropathic and non-neuropathic pain. Discriminant function analysis was then employed to determine if NPS scoring could differentiate between these two "subtypes." Results from the discriminant function analysis model were utilized to derive an NPS cut-off score above which CPPs would be classified as having neuropathic pain. For the diagnoses of myofascial pain syndromes, spinal stenosis, epidural fibrosis, fibromyalgia, complex regional pain syndromes 1 and 2, and failed back surgery syndrome, a predicted NPS score was calculated and compared with the cut-off score.

RESULTS: The NPS appeared to be able to separate CPPs into neuropathic pain vs non-neuropathic pain subtypes. The derived cut-off score from the model was 5.53. Myofascial pain syndrome and spinal stenosis had predictive scores lower than this cut-off score at 3.81 and 4.26, respectively. Epidural fibrosis, fibromyalgia, complex regional pain syndromes 1 and 2, and failed back surgery syndrome had predictive scores higher than the cut-off score at 6.15, 6.35, 6.87, 9.34, and 7.19, respectively.

CONCLUSIONS: The NPS appears to be able to discriminate between neuropathic and non-neuropathic pain. A debate is currently raging as to whether diagnoses, such as fibromyalgia and complex regional pain syndrome 1, can be classified as neuropathic. Our NPS cut-off score results suggest that these diagnoses may have a neuropathic pain component. The reliability and validity of our NPS method will need to be tested further in other neuropathic pain models, such as diabetic peripheral neuropathic pain.