

# NEUROPATHY DIGEST

MAY, 2012 VOL. II

The following is a synopsis of select abstracts, presented at the recent American Academy of Neurology meeting in New Orleans, that may be of interest to physicians that care for patients with neuropathy.

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## **GENERAL CONSIDERATIONS; DIAGNOSIS AND TREATMENT**

### **POTS and Small Fiber Neuropathy**

Christopher Gibbons and colleagues, from Boston, MA, reported on their studies in 14 patients with Postural Tachycardia Syndrome (POTS). They found that 7 of the 14 had neuropathic POTS, with decreased intraepidermal nerve fiber (IENF) density, but with no difference in quantitative sensory testing. Symptoms profile were similar in both neuropathic and non-neuropathic POTS. Identification of small fiber neuropathy may have therapeutic implications in patients with POTS.

### **3,4 Diaminopyridine in Orthostatic Hypotension**

Wolfgang Singer and colleagues, from the Mayo Clinic, MN, examined the effect of 3,4 Diaminopyridine (3,4-DAP), a potassium channel blocker, on 11 patients with orthostatic hypotension. In a placebo controlled, blinded trial, they found that the orthostatic hypotension was significantly improved after administration of the drug. A larger trial is planned to confirm these findings.

### **IENF Density vs QSWEAT or Heart Rate Variability Testing in Early Diabetic Neuropathy**

Eun Hee Sohn and colleagues, from Daejeon, Korea, evaluated the quantitative intraepidermal nerve fiber (IENF) density test in patients with diabetic neuropathy, with or without electrodiagnostic abnormalities. IENF density abnormalities were more frequently detected than QSWEAT or heart rate variability test in both small fiber or mixed

fiber neuropathy. The authors concluded that quantitation of IENFD is more sensitive than other tests for early detection of neuropathy in diabetes.

### **Skin Biopsy in Small Fiber or Mixed Fiber Neuropathy**

Victoria Lawson and colleagues, from Columbus, OH, presented their investigations of skin biopsy and electrodiagnostic tests in patients with idiopathic sensory neuropathy. They found a correlation between abnormalities in the intraepidermal nerve fiber (IENF) density and the mean distal sensory amplitudes or medial plantar responses, suggesting that an abnormal skin biopsy can indicate the presence of a mixed small and large fiber neuropathy, rather than a purely small fiber neuropathy.

### **Pain as a Presentation of HNPP**

Michael Weiss and Dinah Thyerlei, from Seattle, WA, reported 4 patients with hereditary neuropathy with liability to pressure palsy (HNPP), that had pain as the presenting symptom. The pain was diffuse, and often more musculoskeletal than neuropathic in nature. Three met diagnostic criteria for fibromyalgia. Pain symptoms may precede the more classic symptoms of HNPP by a few years.

### **Muscle Cramps in Diabetes**

Hans Katzberg and colleagues, from Toronto, Canada, studied the prevalence of muscle cramps in patients with type 1 and type 2 diabetes mellitus. They found that compared to healthy volunteers, the prevalence of cramps was higher in patients with type 2, but not type 1 diabetes. Approximately 40% of patients with type 2 diabetes described the cramps as disabling. Motor nerve excitability was the same in diabetics and controls, so that other mechanisms are thought to be responsible for the cramping.

### **Morphological Changes in Skin Biopsies from Painful Diabetic Neuropathy**

Hsin-Lin Champ and colleagues from Ann Arbor MI, and Salt Lake City, UT, examined skin biopsies in painful and non-painful diabetic neuropathies. The intradermal nerve fiber (IENF) density was the same in both groups, but the number of regenerating fibers immuno-stained by GAP43 was different, and there were more axonal swellings that were positive for substance P in the proximal skin biopsies of those with painful neuropathy. These morphological changes could be useful in the evaluation of painful diabetic neuropathy.

### **Potassium Channels Mediate Nerve Excitability in Diabetic Neuropathy**

Jennifer Zenker and Colleagues from Lausanne, Switzerland and Paris, France, evaluated voltage gated potassium channels (Kv) in diabetic neuropathy, using human nerve biopsies and db/db diabetic mice. They found increased nerve hyperexcitability with decreased activity of Kv1-channels, and reduced number of Kv1.2 subunits in the juxtaparanodal regions of the peripheral nerves. Flupirtine, an analgesic that activates Kv7-channels, significantly reduced the nerve hyperexcitability.

### **Inflammatory Cytokines in Painful Diabetic Neuropathy**

Ben Illigens and colleagues, from Boston, MA, investigated cytokines in cutaneous interstitial fluid of patients with painful diabetic neuropathy, obtained through vacuum blisters. They found an increase of IL-8 and TNF alpha, consistent with involvement of macrophages and neutrophils, and increase in IL-10, IL-4, and IL-13, suggesting a pro-inflammatory response.