

INTRAEPIDERMAL NERVE FIBER DENSITY IN SKIN BIOPSY - A VALID METHOD TO DIAGNOSE ISOLATED SMALL FIBER NEUROPATHY FIRST EXPERIENCES AT THE UNIVERSITY HOSPITAL BASEL

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Background:

Small fiber neuropathy is a sensory neuropathy affecting small thinly myelinated A_δ fibers and unmyelinated C-fibers. It clinically presents with burning pain and sensory symptoms. As nerve conduction studies mainly detect large fiber function, they often show normal values. Skin biopsy is a new, minimally-invasive and painless tool for the diagnosis of small fiber neuropathy.

Objective:

To evaluate the first experiences with skin biopsies at the University Hospital Basel.

Material/Methods:

At the University Hospital Basel skin biopsies of 39 patients were evaluated in 2007, 2008 and 2009. A sample with a diameter of 3 mm was taken under local anesthesia, biopsies were immunohistochemically stained with anti-PGP9.5. The intraepidermal nerve fibers were counted on three sections per biopsy and assessed according to published normative values.

Results:

26 patients presented with typical symptoms of small fiber neuropathy but normal nerve conduction studies. 22 of these patients had a reduced intraepidermal nerve fiber density, suggesting a small fiber neuropathy. 4 patients had typical symptoms of small fiber neuropathy without reduction of intraepidermal nerve fibers. In addition, skin biopsies of 13 patients with clinically and electrophysiologically diagnosed polyneuropathy were analyzed. In all of these patients an involvement of small fibers could be detected.

Etiological work-up was done for each patient, resulting in findings consistent with previously published data: 54.5% (12 patients) idiopathic small fiber neuropathy, 9.1% (2 patients) impaired glucose tolerance, 9.1% (2 patients) MGUS, 1 patient each with polyarthritis, diabetes, alcohol-toxicity, hepatitis B, hepatitis C and Sjögren's syndrome.

Conclusions:

Skin biopsy proves to be an effective and sensitive method for the diagnosis of small fiber neuropathy. It is especially helpful in patients with an isolated lesion of small fibers where nerve conduction studies show normal values. Our results are consistent with the published data and applicable in a tertiary referral center.

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