

# Small fibers, big troubles : diagnosis and implications of small fiber neuropathy

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# VALORISATION

### **Introduction**

Science serves a purpose, even when not immediately apparent. As researchers continuously question and examine current knowledge of every part of existence, this knowledge will expand and ultimately have impact on daily practice/life. Who would have thought Nikola Tesla's at the time "crazy experiments" would lead to the wireless radio, indoor lighting and electroshock therapy of today?

However, society has a right to ask anyone that wants support (either financial or otherwise) from that society, to justify that support. In the next chapter, the results of this thesis will be looked at from a more general point of view than just a medical one.

### **Valorization**

Valorization means "determining value". More specifically in the context of research: "translation of knowledge into a (commercial) product, service or process".

How does this apply to the research presented in this thesis? We have presented new insight into the diagnosis of small fiber neuropathy (SFN), showed minimum incidence and prevalence of SFN in a defined population and shown several clinical characteristics of SFN and implications on patients' quality of life. Some more general implications of the results have been touched upon in previous chapters, but will be discussed in more detail in this chapter.

### **Diagnosis of small fiber neuropathy**

The possibilities and limitations of several diagnostic techniques for SFN have been presented. By doing so, guidance can be created for clinicians, but also for policy-makers, to determine what tests are of value in the diagnostic procedure. For example, standard neurological examination, nerve conduction studies (to examine other forms of polyneuropathy), and temperature threshold testing (using the presented optimized protocol) should be considered first step investigations in patients with possible (small fiber) neuropathy. This may lead to recognition of SFN and a directed search for underlying illnesses in a substantial amount of patients. Second, for those in whom a diagnosis is still elusive, determination of corneal or intra-epidermal nerve

fiber density can be performed in a specialized center, where also other advanced techniques such as contact heat evoked potentials may be applied. Also, the decision to search more extensively for an etiological factor could be based on the results thereof. Microneurography might presently be reserved for research purposes only.

Following such a stepwise approach might not only lead to better diagnosis of patients with appropriate tests (“products”) but may also lead to better recognition how to organize care for these patients (“services and process”).

Also, the ongoing research into channelopathies is an important sequel, that may reveal the basis for pain and possibly provide targeted treatment, in a wider array of polyneuropathies.

### **Clinical and clinimetric aspects of small fiber neuropathy**

With the presented minimum prevalence and incidence for SFN, better insight into the extent of the problem has been sketched. The socio-economic burden of small fiber neuropathy is better appreciated, and puts costs of research and interventions in perspective. Also, this improves the possibility to evaluate interventions on a population scale. A prevention program (“services and process”) for diabetes mellitus (DM) may for example be evaluated also by incidence of SFN, as both glucose intolerance and DM are important associated diseases.

The delineation of symptoms of SFN and the evaluation of screening tools such as the questionnaires used in this thesis (see appendix) improves recognition of SFN. We hope earlier that appropriate diagnostic workup is initiated sooner with increasing awareness, possibly with the help of such questionnaires. As the impact on quality of life is substantial, this could be of importance for patients. The benefit of finding more appropriate treatment strategies are apparent when impact is appreciated correctly.

Not only patients and care workers are helped by better understanding of the extent of complaints and the impact on quality of life. Again, socio-economic burden is high in diseases with such a large impact on daily living and relevant outcome measures (“products”) help improve evaluation of care both on an individual as on group level (“service and process”).

It is equally important to realize what further research should focus on. Fortunately, a current large scale international study is dedicated to illuminate fundamental processes in SFN!

### **Conclusion**

In this chapter, an effort has been made to put the thesis in a broader perspective. We think the steps made in this thesis lead beyond the doorway of the doctors’ office. Though they may be small steps, they lead us forward.