German Research Network on Neuropathic Pain

Pathophysiology, Prevention and Therapy

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www.neuropathischer-schmerz.de
Description and Aims of the DFNS

Classification of neuropathic pain has been based on disease entities, anatomical localization and histological observations. Treatment algorithms have been almost entirely empirical and disease-oriented. In the past decade, studies in animals and humans have shown that neuropathic pain is probably not a result of a single pathophysiological mechanism, but the end product of an altered peripheral, spinal and supraspinal processing. Since sensory symptoms and special pain types are closely related to the underlying mechanisms, clinical assessment of the symptoms can give a clue of the distinct mechanisms that operate in one individual patient.

In order to derive a more rational treatment of neuropathic pain, the DFNS proposes the following strategy:

1. to establish a data base of patients including psychological and quantitative sensory evaluation,

2. to define pathophysiological mechanisms of pain and associated symptoms as well as the development of chronic neuropathic pain, and

3. to introduce new and to evaluate available interventions to prevent and treat neuropathic pain on the basis of a mechanism-based and symptom-oriented approach.

Germany has already developed a solid international reputation in basic as well as clinical research on neuropathic pain. The DFNS attempts to foster research in the field of neuropathic pain by integrating the resources of the leading centers in Germany actively involved in neuropathic pain research. The central Integrative Network Project of the German Research Network on Neuropathic Pain is to develop a Neuropathic Pain Data bank. All
network participants subserve the data bank with standardized information of each patient regarding socio-economic, psycho-social, psychological data and results of Quantitative Sensory Testing (QST). All participants use standardized patient inventories (somatic, psychological), apply a standardized battery for Quantitative Sensory Testing and are trained for adequate usage. Moreover, a blood sample data bank has been initiated. The data is centrally coordinated by a data management system for documentation and quality assurance. Patient variables are used for epidemiological, cost-effectiveness and cost-utility analyses, symptom description in relation to disease entities, psychological co-morbidity and stratification for one Primary and one Secondary Prevention Study. In these multicenter-studies the efficacy of several compounds in preventing and treating chronic neuropathic pain will be evaluated. Furthermore, the data bank gives access to patients to be investigated in Special Network Projects. Suitable patients with particular profiles of pain and sensory symptoms will be included and exchanged between all Special Network Projects to assess pathophysiological mechanisms.

On this research level three subgroups have been established that comprise complementary and overlapping fields of interest:

1. Pathophysiological mechanisms after compression, degeneration and regeneration of peripheral nerves,
2. Central integration of nociceptive processing,
3. Physiological and psychological influences on cortical reorganisation in complex regional pain syndromes.

Overall, the integration of research and service will improve the understanding of the pathophysiology and foster the development of new and the appropriate usage of established interventions for the treatment and the prevention of neuropathic pain. The ultimate goal is to prevent the development of chronic pain by an early intervention or to extinguish chronic pain by a thoughtful combination of multiple treatment options.
The DFNS grant application refers to the announcement No. 89 of the German Federal Ministry of Education and Research (BMBF), dated from 11th May 2000, concerning "Research Networks for the Study of Pain" as part of the government's priority program "Health Research 2000". The DFNS proposal integrates the German resources of basic and clinical research in the field of neuropathic pain in order to foster the understanding and treatment of chronic pain. The aims of this Network completely match the aims of the funding announcement by including an extended knowledge of the pathophysiology of neuropathic pain:

- study for the primary prevention of neuropathic pain
- study for the secondary prevention of neuropathic pain
- transfer of knowledge from research into clinical service and treatment
- long-term consequences for medical education related to neuropathic pain

Funding period (first and second funding period): 2002 - 2008
DFNS Projects

Integrative Network Projects

• Neuropathic pain data base
• Primary prevention of neuropathic pain
• Secondary prevention of neuropathic pain
• Blood sample bank
• Validation of Quantitative Sensory Testing (QST) as a clinical tool for the assessment of neuropathic pain symptoms and mechanisms

Special Network Projects

• Pathological mechanisms related to compression, degeneration and regeneration of peripheral nerves
• Central integration of nociceptive processing in neuropathic pain
• Physiological and psychological influences on cortical reorganisation: Complex regional pain syndromes (CRPS)