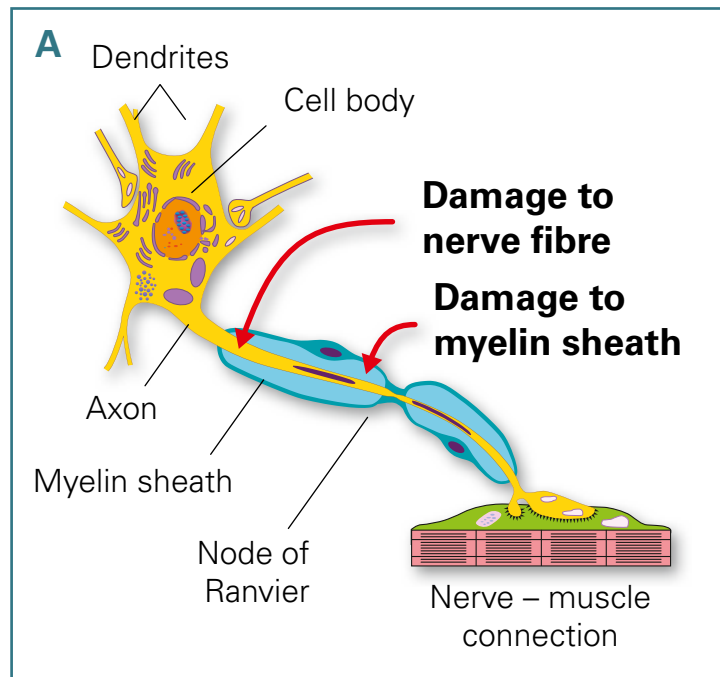
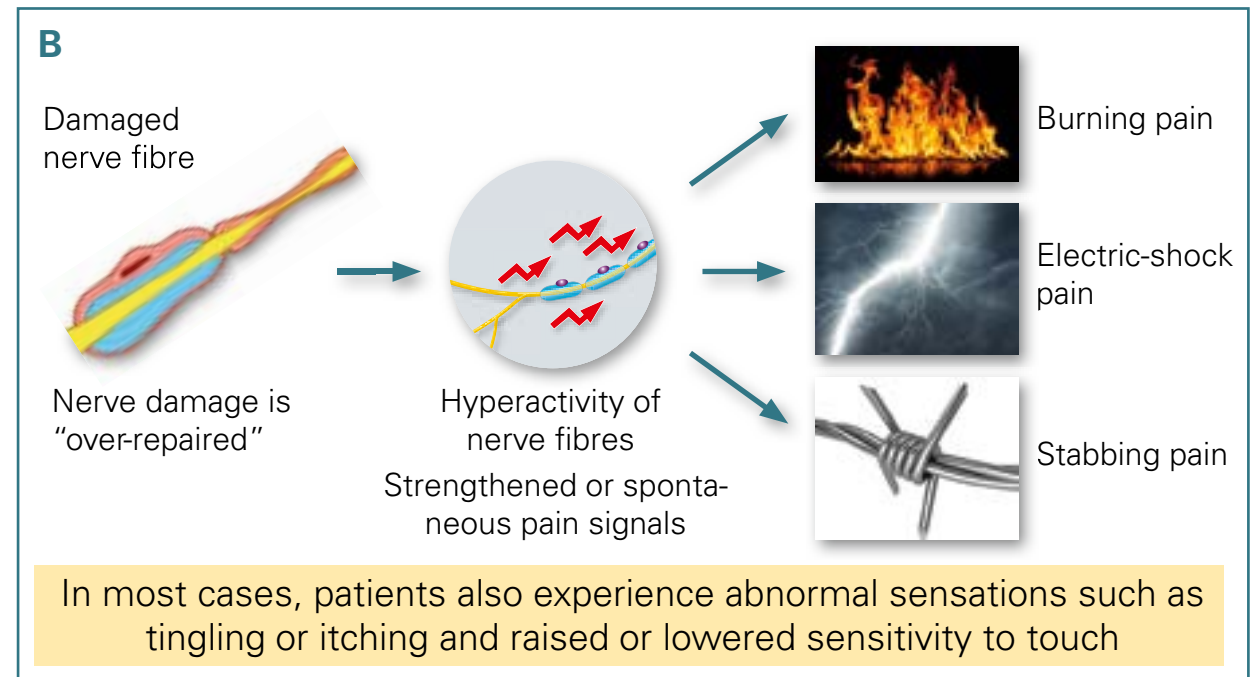


Neuropathies and neuropathic pain [1]

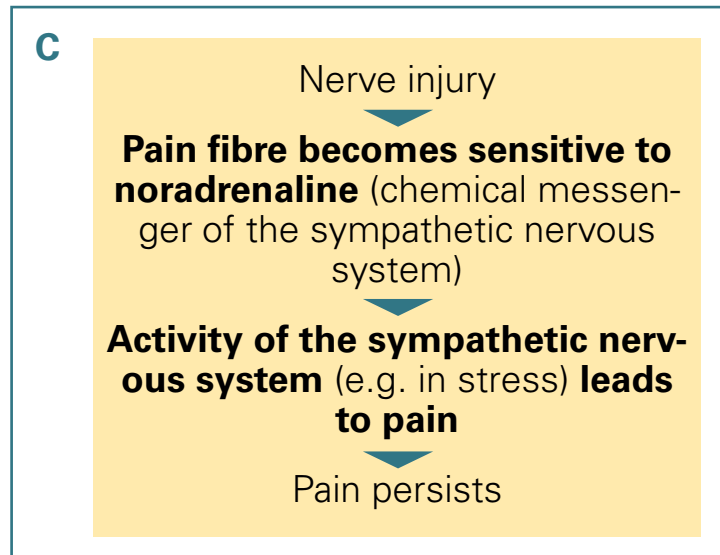
What are neuropathies?



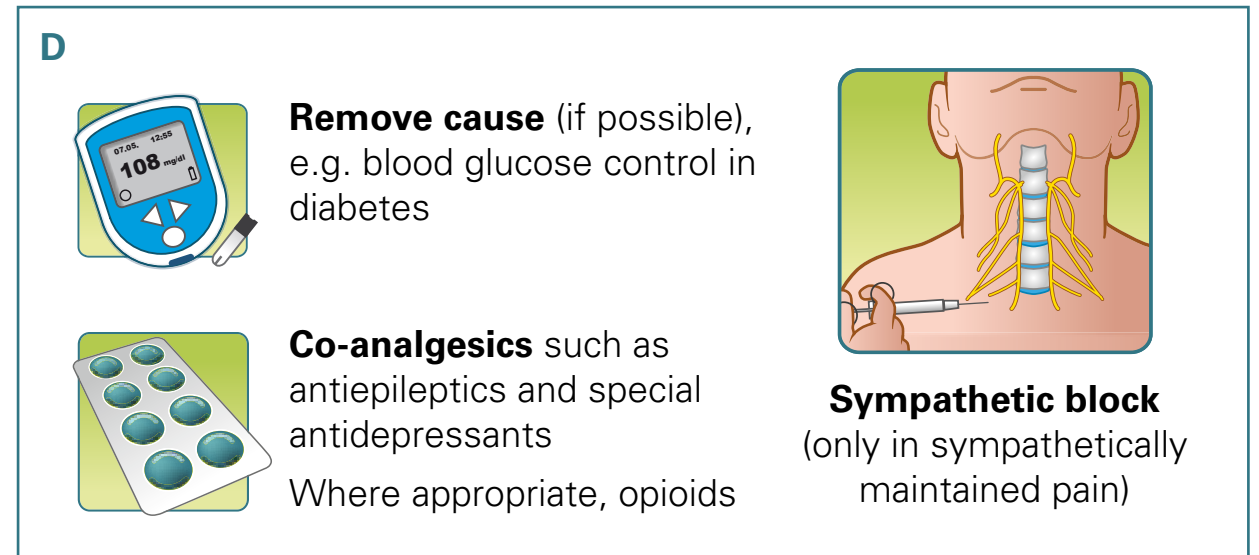
How does neuropathic pain arise and how it is perceived?



Sympathetically maintained pain



Treatment of neuropathic pain [2, 3]



Neuropathies and neuropathic pain [1]

A What are neuropathies?

Neuropathies are diseases of peripheral and central nerves. They rarely occur as an independent (primary) disease, and are mostly the consequence of other conditions (secondary). Several or many nerves are often affected (polyneuropathy).

In neuropathies the nerve fibre is damaged, at the level of the axon (axonopathy) or the myelin sheath (myelinopathy). In axonopathy the blood vessels supplying the nerve fibre are also damaged.

Examples of known causes are diabetes mellitus, alcohol, vitamin B12 deficiency and vitamin B6 overdose.

B How does neuropathic pain arise and how it is perceived?

The nerve cell reacts to neuropathy with “excessive” repair processes. Nerve fibres may consequently become hyperactive and generate pain stimuli without a cause.

Neuropathic pain is commonly stabbing, burning, electric-shock-like or drilling in nature and, unlike nociceptive pain, has no warning function.

Neuropathic pain is generally accompanied by abnormal sensations such as tingling, formication (the sensation of crawling insects) and a change in sensitivity to touch in the area of distribution of the affected nerves.

Weakness, muscle wasting and sensations of numbness may also occur.

C Sympathetically maintained pain

The sympathetic nervous system and its counterpart the parasympathetic nervous system form the autonomic nervous system, which cannot be voluntarily influenced.

Damage or injury to pain fibres can lead to “short circuits” between the pain-conducting nerve fibres and fibres of the sympathetic nervous system. Growth of the sympathetic nerves onto the pain-conducting fibres is suspected.

This means that pain arises as soon as the sympathetic nervous system becomes active (e.g. during stress). The sympathetic nervous system therefore continuously maintains the neuropathic pain. Because of the persistent pain impulses, neuropathic pain has a tendency to become chronic.

D Treatment of neuropathic pain [2, 3]

The most important measure, if possible, is to **remove the cause**, for example to establish normal blood glucose control in diabetes.

Co-analgesics (antidepressants to support the body’s own inhibition of pain, and anticonvulsants to inhibit the excitability of neurons and transmission of impulses in the brain and spinal cord) and, where appropriate, **opioids** are highly effective.

Sympathetic blocks (only in sympathetically maintained pain). Part of the sympathetic nervous system is blocked with local anaesthetics or opioids, so that the vicious circle of sympathetically maintained pain is broken. The illustration shows a stellate block.

If the pain cannot be sufficiently relieved with these measures, psychological pain therapy should be included.

[1] Woolf CJ, Mannion RJ. Lancet (1999) 353:1959- 1964.

[2] O’Connor AB, Dworkin RH. Am J Med (2009) 10(Suppl): S22- S32.

[3] Lipman AG. Clin Geriatr Med (1996) 12(3): 501- 515.