



GLOBAL YEAR AGAINST NEUROPATHIC PAIN

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Allodynia and Hyperalgesia in Neuropathic Pain

Allodynia and hyperalgesia are common and bothersome symptoms in patients with pain due to a disease or injury of the nervous system.

Definition

Allodynia is pain due to a stimulus that does not normally elicit pain.

Hyperalgesia is increased pain from a stimulus that normally provokes pain.

Clinical manifestations

- Allodynia and hyperalgesia are clinical terms that do not imply a mechanism.
- The clinical presentation differs between the different pain conditions.
- The distribution of allodynia and hyperalgesia is located within, but occasionally extends beyond, the innervation territory of the injured or diseased nervous structure.
- Onset is usually early and may decrease over time following an acute injury but may increase over time in slowly progressing neuropathic pain conditions. Early hypersensitivity may increase the odds for persistent neuropathic pain.

Classification

- Allodynia and hyperalgesia are classified according to the sensory modality that elicits pain, i.e. thermal (cold and heat) or mechanical (dynamic touch, punctate, and pressure).
- Dynamic mechanical allodynia is pain evoked by light brushing or stroking of the skin.
- Pressure (static and deep pressure) allodynia and hyperalgesia are elicited by pressure to skin and deep tissue).
- Punctate allodynia and hyperalgesia are evoked by punctate skin stimulation by a pin or a monofilament.
- Cold and warm allodynia and hyperalgesia are provoked by cold or warm stimuli applied to the skin.

Clinical assessment

- Simple bedside tests include response (pain intensity and character) to cotton swab, finger pressure, pinprick, cold and warm stimuli, e.g., metal thermo rollers at 20 and 40°C, as well as mapping of the area of abnormality.
- Quantitative sensory testing can be used to determine pain thresholds (decreased pain threshold indicates allodynia) and stimulus/response functions (increased pain response indicate hyperalgesia). Dynamic mechanical allodynia can be assessed using a cotton swab or a brush. A pressure algometer and standardized monofilaments or weighted pinprick stimuli are used for assessing pressure and punctate allodynia and hyperalgesia and a thermal tester is used for thermal testing.

Treatment

- Treatment includes anti-epileptic drugs (e.g., gabapentin, pregabalin) and/or anti-depressants (e.g., amitriptyline, imipramine, duloxetine), other drugs, and non-pharmacological approaches, and is not different from the general treatment recommendations for neuropathic pain. Patients may also have a reduction in allodynia from application of topical patches, such as a lidocaine patch.

References

1. Haanpää M, Attal N, Backonja M, Baron R, Bennett M, Bouhassira D, Cruccu G, Hansson P, Haythornthwaite JA, Iannetti GD, Jensen TS, Kauppila T, Nurmikko TJ, Rice AS, Rowbotham M, Serra J, Sommer C, Smith BH, Treede RD. NeuPSIG guidelines on neuropathic pain assessment. *Pain* 2001;152:14-27.
2. Jensen TS, Finnerup NB. Allodynia and hyperalgesia in neuropathic pain: clinical manifestations and mechanisms. *Lancet Neurol* 2014;13:924-35.