Mechanisms of nociceptive transduction and transmission: a machinery for pain sensation and tools for selective analgesia

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Abstract:

Many surgical and dental procedures depend on use of local anesthetics to reversibly eliminate pain. By the blockade of voltage-gated sodium channels, local anesthetics prevent the transmission of nociceptive information. However, since all local anesthetics act non-selectively on all types of axons they also cause a loss of innocuous sensation, motor paralysis and autonomic block. Thus, approaches that produce only a selective blockade of pain fibers are of great potential clinical importance. In this chapter we will review the recent findings describing mechanisms of pain transduction and transmission and introduce novel therapeutic approaches to produce pain-selective analgesia.

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