Menthol gel for the management of neuropathic pain after hand surgery – a case report

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Background

The prevalence of neuropathic pain varies between 1.3% and 18% depending of the definition. It affects significantly the quality of life and has important social and economic consequences (1). Complex regional pain syndrome (CRPS) is one of the most severe neuropathic pain conditions. Up to 26% of patients with surgical treatment of traumatic hand injuries may develop CRPS (2).

Menthol has been used for analgesia since the ancient times. Recent interest on menthol in pain management has risen since 2002 when the menthol sensing channel transient receptor potential melastatin 8 (TRPM8) was identified (3,4). Since then menthol has been shown to be effective on the management of several acute nociceptive, inflammatory and neuropathic pain conditions.

Here we present a case report where menthol was used in the treatment of refractory CRPS after traumatic hand injury and surgery.

Case

A 39 years old non-smoking healthy male had a traumatic complete tear of the distal biceps tendon on 18th of June 2017. Two days later a surgery was performed to reattach the tendon to the bone. After surgery he developed a severe lancinating neuropathic pain at the elbow area. Pain was worse on night-time, NRS 7-8/10 and he could sleep only 3-4 h a night. Paracetamol-

codeine and tizanidine were ineffective, gabapentin had some effect, but he was so somnolent at daytime that he could not return to work. Four weeks after the primary injury he was prescribed menthol-gel (Ice Power®, Fysioline Ltd., Tampere, Finland) for day-time used and menthol patches for nights on the elbow area. Since the first night, he was able to sleep 6-7 h a night and pain rating decreased to 3-5/10. After 4 weeks of treatment, he returned to work and was able to stop the menthol-use. Six months after the injury the muscle function has restored, he may have some muscle aches in few nights a week, which are relieved with menthol gel. At daytimes, he has no pain nor other symptoms.

Discussion and conclusions

Menthol is a counter-irritant compound. Initially it stimulates nociceptors and then desensitize them. TRPM8 channels are expressed widely in pain system. In periphery 15% of sensory neurons are TRPM8 activated by menthol. Topically applied menthol activates higher central analgesic pathways also. TRPM8 receptors are expressed in the dorsal root ganglia and the trigeminal ganglia, and in spinal cord in the dorsal and ventral root, i.e. in the ascending and descending pain system (5).

CRPS is a relatively common outcome after surgery and trauma and often treatment-resistant. This case report shows that topical menthol could be highly potent component in multimodal pain management in persistent post-operative/post-traumatic pain.

References

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