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Topical Gabapentin use on CRPS

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Gabapentin is one of the most commonly prescribed pain medications for neuropathic pain in general, and specifically in Complex Regional Pain Syndrome (CRPS) [1]. Gabapentin is thought to work by modulating calcium channels at a specific alpha2delta subunit [5]. CRPS 1 is a disabling syndrome, in which a painful limb is accompanied by varying symptoms [2]. Neuropathic pain is a prominent feature of CRPS I, and is often refractory to treatment [2]. Topical delivery of gabapentin is desirable to treat peripheral neuropathic pain conditions while avoiding systemic side effects [3].

In one randomized, blinded trial in 58 patients with CRPS, gabapentin had a mild effect on pain [1]. Patients started at random with gabapentin or placebo, which was administered in identical capsules three times daily [2]. Dizziness, somnolence and lethargy were significantly more often reported during gabapentin use than during placebo [2]. It was concluded that gabapentin significantly reduced the sensory deficit in the affected limb [2]. A subpopulation of CRPS patients may benefit from gabapentin, but should weigh the benefits against the frequently occurring side effect [2].

In another study the placebo-controlled trial of gabapentin that included CRPS patients (85 of the 305 studied), gabapentin was shown to cause a significant reduction in pain, compared to placebo [1]. Gabapentin was given in three divided doses, initially titrated to 900 mg/day over 3 days, followed by two further increases, to a maximum of 2400 mg/day if required by the end of week 5 [4]. It was determined that the study showed that gabapentin reduces pain and improves some quality-of-life measures in patients with a wide range of neuropathic pain syndromes [4].

Topical delivery of gabapentin could provide an alternative treatment to oral delivery of the active for neuropathic pain conditions, with associated reduced systemic side effects; this is supported by in vivo studies and observational clinical evidence [3]. Studies investigating the efficacy of gabapentin in CRPS type I have reported marked improvements in pain reduction and long-term sensory deficits, thereby supporting the utility of this form of therapy [6].

References:

1. Mackey S & Feinberg S. Pharmacologic therapies for complex regional pain syndrome. Curr Pain Headache 2007; 11 (1): 38-43.
2. Vusse AC, Berg SG, Kessels AH, & Weber WE. Randomised controlled trial of gabapentin in complex regional pain syndrome type 1. BMC Neurology 2004; 4:13
3. Martin C, Alcock N, Hiom S, & Birchall J. Development and evaluation of topical gabapentin formulations. Pharmaceutics 2017; 30,9(3)
4. Serpell MG. Gabapentin in neuropathic pain syndromes: a randomised, double-blind, placebocontrolled trial. Pain 2002;99:557–566.
5. Fink K, Dooley DJ, Meder WP, et al. Inhibition of neuronal Ca(2+) influx by gabapentin and pregabalin in the human neocortex. Neuropharmacology 2002;42:229–236. [PubMed: 11804619]
6. Goh EL, Chidambaram S, & Ma D. Complex regional pain syndrome: a recent update. Burns & Trauma 2017; 5:2