Protective effects of bergamot polyphenolic fraction on neuropathic pain

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Neuropathic pain is a debilitating form of treatment resistant chronic pain and responds poorly to the clinically available therapies. Neuropathic pain is characterized by symptoms including hyperalgesia, allodynia, paresthesia and spontaneous pain. Symptoms can be attributed to a variety of alterations in pain-related gene expression and modification in primary afferent or spinal cord neurons. Recent studies from animal models have led to understanding of its pathobiology which includes complex interrelated pathways leading to peripheral and central neuronal sensitization. Advancements in the elucidation of neuropathic pain mechanisms have revealed a number of key targets that have been hypothesized to modulate clinical neuropathic status caused by oxidative stress conditions.
Also our results demonstrated an increase in oxidative stress markers during chronic neuropathic pain condition. However, administration of natural antioxidants as bergamot polyphenolic fraction preventing reactive species formation significantly attenuated neuropathic pain in our animal model. The present study focuses on nerve alterations due to oxidative stress as key pathogenic mechanisms involved in neuropathic pain and suggests that systemic administration of non-toxic doses of free radical scavengers could be useful for treatment of neuropathic pain.

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