Neuroprotective effects of almond skins in experimental spinal cord injury.

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Abstract:
Background & Aims: Functional deficits following spinal cord injury (SCI) arise from both mechanical injury and from secondary tissue reactions involving inflammation. Natural almond skins (NS) were tested to evaluate anti-inflammatory effects on an animal model of SCI.
Methods: SCI was induced by the application of vascular clips to the dura via a four-level T5eT8 laminectomy. In the present study, to elucidate whether the protective effects of NS are related to the total phenolic content, we also investigated the effect of a blanched (BS) almond skins (industrially obtained by removing bran from the nut) in SCI. NS and BS (30 mg/kg respectively) were administered per os, 1 h and 6 h, after SCI.
Results: SCI in mice resulted in severe injury characterized by edema, tissue damage, production of inflammatory mediators and apoptosis (measured by Bax, Bcl-2 and Tunel assay). NS treatment, 1 and 6 h after SCI, reduced all parameters of inflammation as neutrophil infiltration, NF-kB activation, PAR formation, iNOS expression and apoptosis. However, treatment with BS did not exert any protective effect.
Conclusions: Our results suggest that NS treatment, reducing the development of inflammation and tissue injury, may be useful in the treatment of SCI.