Effects of Flavocoxid, a dual inhibitor of COX-2 and 5-LOX enzymes, in experimental Alzheimer's Disease

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Flavonoids from Scutellaria Baicalensis and Acacia catechu are found in traditional medicines used for the treatment of several clinical conditions. Mixtures of these plant extracts have anti-inflammatory, antiviral, antibacterial, anticancer and cardiovascular effects (Huang et al., 2005). Flavocoxid contains both baicalin and catechin, which inhibit in vitro COX-1 and COX-2 peroxidase activities, rather than the cyclooxygenase moiety of these enzymes, and the 5-LOX enzyme (Burnett et al., 2011). Flavocoxid also reduces in vitro COX-2 and 5-LOX mRNA expression and affects gene expression as well as protein levels of inflammatory markers (i.e., TNFα) from immune-inflammatory cells (Altavilla et al., 2009). In vivo studies have confirmed the strong anti-inflammatory activity of flavocoxid. Flavocoxid reduced the exaggerated muscle necrosis and inflammation in mdx mice, an experimental model of Duchenne dystrophy disease (Messina et al., 2009). In this study we investigated the anti-inflammatory effects of Flavocoxid in experimental Alzheimer's disease (AD), by using a mouse model harboring human transgenes APP_{Swe}, $PS1_{M146V}$ and tau_{P301L} (3xTg-AD mice). Flavocoxid was administered daily for 3 months at the dose of 20mg/kg/i.p. Treated mice showed a reduced expression of AD-related specific proteins as phospho-tau, ß-amyloid, and PS1, suggesting a potential therapeutic use of flavocoxid in reducing AD-driven neurodegeneration.

References

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