

What is the effect of fluoxetine on mast cell?

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Mast cells are now recognized as "granular cells of the connective tissue", whose activation exacerbates allergic immune responses and as key players in the establishment of innate immunity as well as modulators of adaptive immune responses. The role of mast cells in the gastrointestinal mucosa is not only to react to antigens, but also to actively regulate the barrier and transport properties of the intestinal epithelium.

In clinical studies, it has become clear that psychological factors, especially anxiety and depression, play an important role in gastrointestinal diseases by precipitating exacerbation of symptoms. Fluoxetine hydrochloride (fluoxetine) is a kind of selective serotonin reuptake inhibitors (SSRIs), which belong to a class of antidepressants used in the treatment of depression and anxiety disorders.

The research team led by He-Shen Luo, from the Renmin Hospital of Wuhan University of China, investigated the effects of fluoxetine on mast cell morphology and rMCP-1 expression in gastric antrum in a rat model of depression. This will be published on December 7, 2008 in the *World Journal of Gastroenterology*.

A Sprague-Dawley rat model of chronic stress-induced depression was established. Fifty experimental rats were randomly divided into the five groups: normal control group, fluoxetine + normal control group, depressed model group, saline + depressed model group, and fluoxetine + depressed model group. Laser scanning confocal microscopy (LSCM) immunofluorescence and RT-PCR techniques were used to investigate

rMCP-1 expression in gastric antrum. Mast cell morphology was observed under transmission electron microscopy.

They found that depression induced mast cell proliferation, activation, and granule hyperplasia. Compared with the normal control group, the average immunofluorescence intensity of gastric antrum rMCP-1 significantly increased in depressed model group (37.4 ± 7.7 vs 24.5 ± 5.6 , P

These findings will conduce to understand that chronic heterotypic stress may induce the immune responses in gastric mucosa. Treatment with fluoxetine can ameliorate pathological changes in gastric antrum of depressed rat model, suggesting that SSRIs are an effective therapeutic agent for some gastroduodenal diseases caused by psychological factors.

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