

论著

应激状态下大鼠胃壁细胞H⁺-K⁺-ATP酶活性测定及电镜酶细胞化学研究

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收稿日期 2005-8-30 修回日期 2005-11-14 网络版发布日期 2008-8-10 接受日期 2005-11-14

摘要 目的: 探讨应激状态下大鼠胃壁细胞H⁺-K⁺-ATP酶活性及电镜酶细胞化学染色的变化。

方法: 将24只SD大鼠随机分为对照组、应激组和应激+奥美拉唑(OM)组, 采用水浸-束缚应激(WRS)动物模型, 检测胃粘膜溃疡指数(UI)和壁细胞H⁺-K⁺-ATP酶活性, 观察壁细胞超微结构变化及H⁺-K⁺-ATP酶细胞化学染色结果。

结果: 应激组胃粘膜UI和壁细胞H⁺-K⁺-ATP酶活性明显高于对照组(P<0.01和P<0.05), 而应激+OM组UI和H⁺-K⁺-ATP酶活性明显低于应激组(P<0.01); 电镜下对照组壁细胞呈静息状态, 应激组壁细胞内分泌小管密集呈激活状态, 而应激+OM组分泌小管明显扩张, 绒毛稀少; 酶细胞化学染色显示对照组壁细胞的分泌小管和顶部质膜有少量黑色点状酶反应产物沉积, 应激组壁细胞的分泌小管可见多量的、密集分布的黑色点状酶反应产物, 而应激+OM组分泌小管上几乎无反应产物沉积。

结论: 应激状态下大鼠胃壁细胞H⁺-K⁺-ATP酶活性升高, 且与壁细胞超微结构改变相一致, 提示胃酸是应激性溃疡发生的重要因素之一。

关键词 [应激](#); [溃疡](#); [壁细胞, 胃](#); [H+-K+-ATP酶](#)

分类号 [R363](#)

Activity of H⁺-K⁺-ATPase in gastric parietal cells under stress in rats and analysis of electron microscopic enzyme cytochemistry

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Abstract

AIM: To demonstrate the changes of activity and electron microscopic enzyme cytochemistry staining of H⁺-K⁺-ATPase of gastric parietal cells under stress in rats.
METHODS: Twenty-four male SD rats were randomly divided into normal group, stress group and stress+omeprazole (OM) group. Water immersion-restraint stress (WRS) model in SD rats was performed. The ulcer index (UI) of gastric mucosa and H⁺-K⁺-ATPase activity of gastric parietal cells were measured. The changes of ultrastructure and electron microscopic enzyme cytochemistry staining of parietal cells were observed under transmission electron microscope (TEM).
RESULTS: Compared with control group, the UI of gastric mucosa and H⁺-K⁺-ATPase activity of gastric parietal cells increased (P<0.01 and P<0.05) in stress group. In stress+OM group, both UI and H⁺-K⁺-ATPase activity decreased (P<0.01) compared with stress group. Parietal cells were in a resting state in control group, and became active in stress group, where plenty of intracellular canaliculi were observed under the TEM. In stress+OM group, the dilated intracellular canaliculi lined with rare microvilli were founded. Enzyme cytochemistry staining showed that there was little black punctate enzyme reactive product scatted in intracellular canaliculi and the apical plasma membrane of parietal cells in control group, and

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there were large amounts of black enzyme reactive product accumulated at the intracellular canaliculi in stress group. Scarcely deposition of enzyme reactive product in intracellular canaliculi was observed in stress+OM group.

CONCLUSION: The results indicate that the H⁺-K⁺-ATPase activity of gastric parietal cells increases under WRS, and is in accordance with ultrastructure changes. These findings suggest that gastric acid might be one of the most important factors that result in stress ulcer.

Key words [Stress](#) [Ulcer](#) [Parietal cells](#) [gastric](#) [H⁺-K⁺-ATPase](#)

DOI: 1000-4718

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