

Role of heat shock protein in gastric mucosal protection

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Mild stresses induce heat shock proteins (HSP) in a variety of tissues, which afford protection of the cells from more severe stresses, a phenomenon called “adaptive cytoprotection”. Geranylgeranylacetone (GGA) induces HSP70 without causing cellular damage. A number of previous studies in gastric epithelial cells *in vitro*, and experimental animals *in vivo* have shown that GGA induces HSP70, and protects the mucosa from injury caused by noxious agents, such as NSAIDs and ethanol, indicating that HSP plays an important role in adaptive cytoprotection in gastric mucosa. However, the roles of HSP in protection of human gastric mucosa have not been evaluated until recently. In clinical practice, NSAIDs have been recognized as the most problematic agents to cause intractable and recurrent ulcers in human gastric mucosa. In this study, we examined the effects of GGA on human gastric mucosa during diclofenac treatment, using gastroscopy. We found that clinical dose of GGA treatment up-regulates HSP70 expression in human gastric mucosa, and that GGA treatment significantly reduces the number of gastric erosions during diclofenac treatment. These data suggest that clinical dose of GGA protects human gastric mucosa from NSAIDs-induced injury, presumably by up-regulating gastric mucosal HSP70 expression.