Beneficial effects of tricetin in cerulein induced acute pancreatitis

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Acute pancreatitis (AP) is one of the most common gastrointestinal diseases in developed societies. The disease has a high (30-40%) mortality due to the lack of efficient therapies. In AP, digestive pancreatic enzymes are prematurely activated in the acinar cells leading to tissue damage.
Our aim was to examine the possible beneficial effect of the flavonoid compound tricetin in a mouse model of cerulein-induced AP (8 injections at hourly intervals, 50μg/kg body weight). In vivo data were complemented with cell-based (in vitro) experiments performed with cerulein-treated (100nM) isolated acinar cells.
Intraperitoneal injection of tricetin (10mg/kg body weight) reduced cerulein-induced acinar cell damage as reflected by serum markers of acinar injury (lipase and amylase activities). Tricetin also reduced granulocyte infiltration of the pancreas as indicated by tissue myeloperoxidase assays. Moreover, histological evaluation of H&E stained pancreas sections showed lower disease score in the pancreata of tricetin-treated animals compared to the cerulein group.
In vitro, tricetin suppressed the expression of the inflammatory cytokines (IL1beta, IL6) and matrix metalloproteinase 2. Furthermore, cerulein-induced necrotic cell death was suppressed by the flavonoid. Our data suggest that tricetin may be an effective treatment option for AP.
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