Protective effects and anti-inflammatory pathways of exogenous calcitonin gene-related peptide in severe necrotizing pancreatitis.

BACKGROUND: Microcirculatory disturbances are known to play a pivotal role in the pathogenesis of severe necrotizing pancreatitis (SNP). Calcitonin gene-related peptide (CGRP) is a vasodilatatory neuropeptide with potential anti-inflammatory effects. This study characterizes the protective effects and the anti-inflammatory pathway of exogenous CGRP in SNP.

METHODS: SNP was induced in rats using the glycodeoxycholic acid model. CGRP was injected prophylactically before or therapeutically after initiation of the disease. Pancreatic damage was assessed using intravital microscopy, histology, NF-kappaB p50/p65 electrophoretic mobility shift assay, serum cytokine assay and ICAM-1 immunohistochemistry at 6 or 12 h after the onset of disease. RESULTS: Pancreatic microcirculatory disturbances, nuclear NF-kappaB levels and pancreatic ICAM-1 expression were increased in SNP compared to controls. After CGRP application, microcirculatory disturbances, NF-kappaB levels and pancreatic ICAM-1 expression were attenuated compared to pancreatitis alone. Moreover, pancreatic morphologic damage was significantly reduced by both prophylactic and therapeutic application of CGRP.

CONCLUSIONS: CGRP is a
neuropeptide that ameliorates the development of SNP in rats and may provide new treatment options. Its anti-inflammatory effects appear to be mediated by the modulation of pancreatic microcirculation and the inflammatory cascade.

Zeitschriftentitel / Abkürzung:
Pancreatology

Jahr:
2009

Band:
9

Heft / Issue:
5

Seiten:
662-9

Sprache:
eng

Pubmed:

Print-ISSN:
1424-3903

TUM Einrichtung:
Urologische Klinik und Poliklinik

Occurences:
· Einrichtungen > Fakultäten > Fakultät für Medizin > Kliniken und Institute > Urologische Klinik und Poliklinik > 2009

entries: