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Liver, pancreas, gastrointestinal diseases, microbiome

W214

PRESEPSIN LEVELS, REACTIVE OXYGEN AND NITROGEN SPECIES IN EXPERIMENTAL SEPSIS MODELS

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BACKGROUND-AIM

Presepsin is a protein, which is a fragment of CD14, and it is produced on the surface of various cells including monocytes, macrophages, neutrophils, and B cells in response to bacterial infections. Therefore it was hypothesized that presepsin is a good marker for the diagnosis of sepsis. Sepsis is also associated with oxidative stress, whereas tissue damage produced reactive oxygen and nitrogen species (RONS) which results in severe oxidative stress. The aim of this study was to evaluate the clinical performance of presepsin levels in two different experimental sepsis models in rats. Additionally presepsin levels were correlated with RONS measurements.

METHODS

Sprague-Dawley rats were divided into four groups (n=6). The first group received an operation for short bowel disease; the third group for cecal ligation; the second and fourth groups were as sham operated control groups. After 7 days rats were decapitated, trunk blood was collected for presepsin measurements; liver and intestinal tissues were removed for reactive oxygen and nitrogen species measurements with the chemiluminescence (CL) method. Statistics were performed using GraphPad InStat program, p<0.05 was regarded as significant.

RESULTS

Presepsin levels in rats with short bowel disease (0.64 ± 0.17 ng/mL) and cecal ligation model (0.68 ± 0.12 ng/mL) were significantly higher than their sham operated (0.14 ± 0.05 ng/mL; p<0.05 vs. 0.25 ± 0.06 ng/mL; p<0.01, respectively) control rats. Luminol (hydrogen peroxide, hypochlorous acid, hydroxyl radical specific probe), lucigenin (superoxide radical specific probe) enhanced CL and NO measurements were significantly higher in cecal ligation and short bowel disease treated liver and intestinal tissues, than their sham operated control tissues. A correlation between presepsin levels and RONS was not determined (P>0.05)

CONCLUSION

Our results suggested that presepsin levels and RONS release are associated with development of sepsis in experimental cecal ligation and short bowel disease models, in rats.