

Mo2065

The Effect of Pentadecapeptide BPC 157 on Duodenocolic Fistula Healing

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Duodenocolic fistula is one of complications in patients with Crohn's disease or intestinal malignancy, without proper pharmacological therapy. Aim We focused on the healing of internal fistulas, specifically duodenocolic fistulas known as complications of Crohn's disease or intestinal malignancy. The stable gastric pentadecapeptide BPC 157, tested in clinical trials for IBD therapy, has already resolved the healing of various external fistulas, colocutaneous (J. Pharmacol Sci 2008), gastrocutaneous fistulas (Dig Dis Sci 2009), duodenocutaneous (Gastroenterology 2012). Therefore, BPC 157 may be a successful therapy of duodenocolic fistulas MATERIALS AND METHODS In male Wistar rats, fistula length of 4mm was surgically created as a junction between the duodenum (1cm aboral from pylorus) and colon (2 cm aboral from ileocecal valve). The pentadecapeptide BPC157 was regularly used in doses 10 μ g/kg and 10ng/kg ip. Control rats received 0.9% NaCl (ip). The rats were weighed once daily during the experiment (groups 1,3,5,7,14,21 and 28 days). During the sacrifice the volume of water (V), required for leakage through the fistula (mLH₂O), was measured. The body mass change, macroscopic changes of bowel at the fistula site(the diameter of the fistula at duodenal and colonic side) and microscopical evaluation of the fistula were also observed. RESULTS During our experiment all control animals from first experimental day were losing their weight(7th day: con -70 +/-15g vrs BPC 157 -20+/- 8.3g; 14thday: con -43+/- 6.5g vrs BPC 157 -18 +/-5.2g). The diameters of duodenum and colon were similar in control and in pentadecapeptide BPC 157 groups (duodenal diameter: 6.2mm +/-1.6 mm (control group) vrs. 6.1 +/- 1.8 mm(BPC 157 groups), colon diameter : 9.1+/-1.6 mm (control group) vrs 8.8+/- 1.4 mm (BPC 157 group)). In pentadecapeptide BPC 157 rats, during 28 days the fistula was successfully healed, in control group the same was not noticed (0.0+/-0,0 mm(duodenal), 0.0+/-0.0 mm(colon)diameter) vrs 2.1+/-0.3 mm(duodenal), 1.8+/-0.2mm(colon) diameter; V: 8.3+/-0.5mL(BPC157) vrs 1.1+/-0.3ml(con)). The duodenocolic fistula healing was also microscopically confirmed. CONCLUSION Pentadecapeptide BPC 157 improved in our experiment all observed parameters of duodenocolic fistula healing, and could be pharmacological solution for this complicate clinical problem Key words: Pentadecapeptide BPC158, duodenocolic fistula, rat