World Journal of Gastroenterology

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DOI: 10.3748/wjg.v6.iSuppl3.148

World J Gastroenterol 2000 September 15; 6(Suppl3): 148
ISSN 1007-9327 (print) ISSN 2219-2840 (online)

Effects of colloidal bismuth tartrate on colitis induced by immune-complex in rabbits

Li Zheng, Shu-Xian Wang, Zhen-Qiang Gao

Li Zheng, Shu-Xian Wang, Department of Pharmacology, National Institutes of Pharmaceutical Research and Development, Beijing 102206, China

Zhen-Qiang Gao, Department of Pathology, Beijing Medical University, Beijing 100083, China

Author contributions: All authors contributed equally to the work.

Supported by The National "Eighth Five-Year Plan" Program, No. 85-922-01.

Correspondence to: Dr. Li Zheng, Associate Professor, National Institute of Pharmaceutical Research and Development, Beijing 102206, China. nipzl@263.net
Telephone: +86-10-69732071
Fax: +86-10-80714198

Received: July 22, 2000
Revised: August 5, 2000
Accepted: August 24, 2000
Published online: September 15, 2000

Abstract

AIM: To observe the therapeutic effect of colloidal bismuth tartrate in an animal colitis model.

METHODS: Immune-complex colitis was induced in groups of rabbits by formalin, and two hours later 0.85 mL heat aggregated rabbit IgG was given intravenously through the ear cannula. Animals were intracolonically treated with colloidal bismuth tartrate (BITNAL), and its effect was compared with sulfasalazine (SASP), indomethacin (IND) and bifidobiogen (BIFG). Animals were killed, the mucosal appearance was scored (0-4), and tissue saved for histological studies, the number of neutrophils present in inflamed colonic tissue was quantitated by the myeloperoxidase (MPO) activity assay, the production of lipoxygenase and cyclo-oxygenase products was monitored and eicosanoid production were assayed by incubation colonic specimens and the media for prostaglandin E2 (PGE2), leukotriene (LTB4), thromboxane B2 (TXB2) were examined by radiommunoassay.

RESULTS: Immune complex colitis was induced by formalin and IgG, colonic damage persisted for at least 1 wk by macrography. Histologically, the inflammatory response included mucosal and submucosal infiltration by polymorphonuclear leukocytes, macrophages, lymphocytes and fibroblasts, the macroscopic, persent 2 wk after IgG, was correlated with greatly increased PGE2, LTB4 and TXB2 compared with levels in controls. Treatment with BITNAL (500 mg/kg) resulted in a lowered inflammation index, lowered MPO activity and inhibited the increased formation of PGE2, LTB4 and TXB2 by the inflamed colon, and IND (500 mg/kg) markedly inhibited prostanoid formation in both inflamed and control colon but did not reduce tissue damage, SASP (500 mg/kg) also inhibited the formation of PGE2, LTB4 and TXB2 but the effects were less marked. BIFG (400 mg/kg) did not significantly reduce the colonic injury and the media sythesized by the rabbit colon.

CONCLUSION: BITAL provides better therapeutic effects in experimental colitis than anti-inflammatory drug IND or SASP.

Key words: Colitis/therapy; Bitnal; Rabbits; Models; Formaldehyde; Immunoglobulins

Zheng L, Wang SX, Gao ZQ. Effects of colloidal bismuth tartrate on colitis induced by immune-complex in rabbits. *World J Gastroenterol* 2000; 6(Suppl3): 148 Available from: URL: http://www.wjgnet.com/1007-9327/full/v6/iSuppl3/148.htm DOI: http://dx.doi.org/10.3748/wjg.v6.iSuppl3.148

E- Editor: Zhang FF

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