

Gastric secretion and serum gastrin level in chicken

Yun-Wei Yao, Lin-Song Wang, Zhi-Fang Zhang, Hui-Yin Tu, Jian-Zhong Liu, Ming Yan, Ren Wu

Yun-Wei Yao, Hui-Yin Tu, Jian-Zhong Liu, Ming Yan, Ren Wu, Department of Physiology, Henan Medical University, Zhengzhou 450052, Henan Province, China

Lin-Song Wang, Department of Biology, Henan Normal University, Xinxiang 453002, Henan Province, China

Zhi-Fang Zhang, Department of Physiology, Zhongshan Medical University, Guangzhou 510089, Guangdong Province, China

Author contributions: All authors contributed equally to the work.

Supported by the Scientific Foundation of Henan Provincial Medical Scientific Academy.

Correspondence to: Yun-Wei Yao, Department of Physiology, Henan Medical University, Zhengzhou 450052, Henan Province, China
Telephone: +86-371-6973648

Received: July 3, 1999
Revised: December 2, 1999
Accepted: January 7, 2000
Published online: September 15, 2000

Abstract

AIM: To report a new method designed to collect gastric juice from chicken, and determine the basal level of gastric acid and serum gastrin, and the effect of pentagastrin on gastric acid output.

METHODS: White Leghorn chickens, weighing 1.3-1.7 kg, deprived of food 24 h prior to experiment, were anaesthetized with pentobarbital sodium (60 µg/kg, im). A reverse double lumen

perfusion cannula was introduced into the distal portion of the proventriculus through the crop incision. The perfusate drained out from the cannular outlet was collected to determine the gastric acid. Gastric acid volume was determined by titration with 0.01 N NaOH. Serum gastrin levels were measured by radioimmunoassay using gastrin assay kit.

RESULTS: Acid output in the basal state was 0.041 ± 0.006 mmol/L/10 min, or 0.246 ± 0.031 mmol/L/h. The serum gastrin concentration was 78.27 ± 19.19 pg/mL ($n = 22$). Three groups were injected pentagastrin at three dose level, 20 µg/kg, 60 µg/kg, 120 µg/kg, respectively. The maximum output in three groups was 275%, 181% and 167% of their control acid output. Isoproterenol at a dose of 0.3 mg/kg produced obvious inhibition of pentagastrin stimulated gastric secretion. The effect of isoproterenol on gastric secretion was completely abolished by propranolol, a β-receptor antagonist, but was not done by practolol, another β1-receptor antagonist.

CONCLUSION: The basal gastric acid output of chicken was high. Pentagastrin remarkably stimulated gastric acid secretion, which could be inhibited by isoproterenol.

Key words: Chickens; Gastric juice; Gastric acid; Gastrins/blood; Pentagastrin; Isoproterenol

© The Author(s) 2000. Published by Baishideng Publishing Group Inc. All rights reserved.

Yao YW, Wang LS, Zhang ZF, Tu HY, Liu JZ, Yan M, Wu R. Gastric secretion and serum gastrin level in chicken. *World J Gastroenterology* 2000; 6(Suppl 3): 43 Available from: URL: <http://www.wjgnet.com/1007-9327/full/v6/iSuppl3/43.htm> DOI: <http://dx.doi.org/10.3748/wjg.v6.iSuppl3.43>

E- Editor: Hu S



Published by **Baishideng Publishing Group Inc**

8226 Regency Drive, Pleasanton, CA 94588, USA

Telephone: +1-925-223-8242

Fax: +1-925-223-8243

E-mail: bpgoffice@wjgnet.com

Help Desk: <http://www.wjgnet.com/esps/helpdesk.aspx>

<http://www.wjgnet.com>

