



## Effect of electrical stimulation of arcuate nucleus on gastric electrical activity in the rats

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### Abstract

**AIM:** Our previous study showed electrical stimulation of arcuate nucleus (ARC) could decrease gastric motility. The aim of this study was to investigate the effect of electrical stimulation of ARC of gastric electrical activity (GES).

**METHODS:** Wistar rats. The GEA was led by two electrodes implanted under the serosal of the anterior wall of the antrum.

**RESULTS:** (1) During stimulation, the slow wave of GEA showed

inhibition in amplitude (61.9%). (2) After lesion of Locus Coeruleus (LC) or dorsal Raphe (dr), the inhibitory effect was abolished ( $P < 0.01$ ,  $P < 0.05$ , respectively), but the effect was not changed by intraventricular injection of naloxone ( $P > 0.05$ ). (3) The effect was abolished by extirpation of celiac neural plexus ( $P < 0.01$ ) and by propranolol ( $P < 0.05$ ), but not by phentolamine ( $P > 0.05$ ).

**CONCLUSION:** (1) Electrical stimulation of ARC may result in inhibition of GEA amplitude. (2) LC and DR are involved in the inhibitory effect, but  $\beta$  endorphin neurons rich in ARC may not be involved in such effect. (3) The peripheral neural pathway of the effect may be exclusively transduced by sympathetic nerve mediated through  $\beta$  receptors.

**Key words:** Electrical stimulation; Arcuate nucleus; Gastric electrical activity; Rats

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