

EFFECT OF GABA AND BACLOFEN MICROINJECTIONS IN THE MEDULLARY RAPHE ON COUGH IN CATS

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The effect of microinjections of GABA and baclofen (GABA(B) receptors agonist) on the mechanically induced tracheobronchial cough were examined on 25 pentobarbitone anesthetized spontaneously breathing cats. GABA microinjections: *4 mm rostral to the obex* reduced the cough number related to 10s stimulation from 4.48 ± 0.30 to 3.17 ± 0.24 ($p < 0.01$; 4.20 ± 0.45 in recovery > 7 min post-microinjections, $p < 0.01$), cough abdominal motor drive to $50 \pm 10\%$ ($p < 0.05$; recovery $85 \pm 24\%$), and cough expiratory esophageal pressure to $61 \pm 9\%$ ($p < 0.01$; recovery $83 \pm 9\%$, $p < 0.05$) and prolonged cough diaphragm activity by 23% ($p < 0.05$) and cough inspiratory phase by 22% ($p < 0.05$); *1 mm rostral to the obex* reduced cough abdominal motor drive to $49 \pm 9\%$ ($p < 0.001$; recovery $82 \pm 9\%$, $p < 0.01$) and cough expiratory esophageal pressure to $64 \pm 11\%$ ($p < 0.05$; recovery $102 \pm 13\%$, $p < 0.01$). Baclofen microinjections: *4 mm rostral to the obex* reduced cough abdominal motor drive to $63 \pm 11\%$ ($p < 0.05$; recovery $89 \pm 16\%$) and cough expiratory esophageal pressure to $57 \pm 13\%$ ($p < 0.05$; recovery $72 \pm 18\%$), *1 mm rostral to the obex* reduced the cough number to $74 \pm 7\%$ ($p < 0.01$; recovery $93 \pm 7\%$, $p < 0.05$). The distribution of cough related neurons and/or their GABA-ergic modulation vary depending on the rostro-caudal positions and likely the particular structures of raphe. This work was supported by the APVV-0189-11, VEGA1/0072/16 and 1/0253/15.