

**THE INFLUENCE OF MICROINJECTION OF D,L-HOMOCYSTEIC ACID INTO THE BÖTZINGER COMPLEX AREA ON THE COUGH REFLEX IN THE CAT**

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Microinjection of D,L-homocysteic acid (DLH) was used to test the hypothesis that neuronal activation within the Bötzinger complex area (BOT) can modify the spatiotemporal characteristics of the cough reflex in 17 spontaneously breathing pentobarbitone anesthetized cats. DLH (50mM, 1.3-1.75nmol, 9 cats) reduced the number ( $p<0.01$ ) and expiratory amplitudes of abdominal EMG ( $p<0.01$ ) and esophageal pressure ( $p<0.001$ ) during mechanically induced tracheobronchial coughs. The cough abdominal activity was shortened by 48% ( $p<0.05$ ). DLH microinjections also temporarily reduced the respiratory rate ( $p<0.01$ ) and increased the mean arterial blood pressure ( $p<0.001$ ), baseline of esophageal pressure ( $p<0.01$ ), and end tidal CO<sub>2</sub> concentrations ( $p<0.01$ ). Lower DLH doses (0.27-0.35nmol, 7 cats) or the vehicle (25-35nl, 8 cats) induced few alterations in cardiorespiratory or coughs characteristics. Predominantly inhibitory effects of BOT neurons might account for observed depression of cough abdominal activity. The mechanism of cough number reduction due to DLH microinjections within the BOT is unclear.

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