

## THE EFFECT OF SUPERIOR LARYNGEAL NERVE BLOCK ON COUGH IN ANESTHETIZED CATS

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Unilateral and bilateral cooling ( $<5^{\circ}\text{C}$ ) and the bilateral transection of the superior laryngeal nerve (SLN) were employed to modulate features of tracheobronchial (TB) and laryngeal (LAR) cough. Experiments were performed on 12 spontaneously breathing cats (3 females and 9 males;  $4.19 \pm 0.23$  kg) anesthetized with sodium pentobarbital. TB and LAR were induced by mechanical stimulation of the tracheobronchial and laryngeal airways, respectively. There was little effect of SLN block on TB, only amplitudes of abdominal EMG activity decreased to 80% ( $p < 0.05$ ) during bilateral SLN cooling. Bilateral SLN cooling reduced the number of LARs ( $<50\%$ ,  $p < 0.05$ ), amplitudes of diaphragm EMG activity ( $<55\%$ ,  $p < 0.05$ ), and cough expiratory efforts (abdominal activity and esophageal pressure,  $<40\%$ ,  $p < 0.01$ ) during LAR. Effects after unilateral SLN cooling were less pronounced (number of LARs did not change significantly). Temporal analysis showed compressed expiratory phases as well as the duration of abdominal activity after unilateral and bilateral cooling and compressed the total cycle duration after bilateral cooling. There was no significant difference in the average effects of cooling of left and right SLN in LAR or TB cough.

Differences in effects of superior laryngeal nerve blocks on tracheobronchial and laryngeal coughs indicate distinct central processing of afferent drive upon these reflexes in CNS.

**Keywords:** superior laryngeal nerve, cooling, cross-section, laryngeal cough, tracheobronchial cough, cats

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