

SPATIO-TEMPORAL CHANGES IN COUGH RESPONSE IN CATS

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We evaluated cough reflex responsiveness to repetitive mechanical stimulation of equal intensity in cats. Number of coughs, amplitudes of diaphragm and abdominal muscles electromyograms, inspiratory and expiratory esophageal pressure during cough were analyzed.

We observed significant increase in responsiveness from the 1st to the 2nd cough trial followed by reduction in cough responsiveness in subsequent trials (up to 20th) in all measured spatial parameters – adaptation (tachyphylaxis). Initial increase in responsiveness was also observed after prolonged time period in between the trails (several minutes). Several temporal characteristics were prolonged in the 1st trial after time lag, while the temporal changes in coughing during the adaptation were limited and statistically non-significant.

The data suggest interesting changes in cough responsiveness to virtually stable stimulation within seconds to minutes time scale that might contribute to cough response during pathological conditions and production of cough attack of various intensity. Temporal data are consistent with different mechanism responsible for reduced coughing during adaptation vs. enhanced coughing from 1st to the 2nd cough trial after the time delay.

VEGA 1/0092/20, NIH R01 131716, NIH SPARC 30T2023854, NIH R01 163008