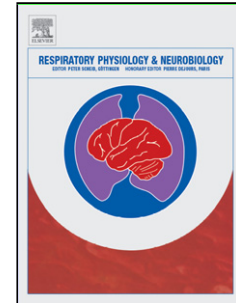


Accepted Manuscript

Title: The Impact of Bilateral Vagotomy on the
Physostigmine-induced Airway Constriction in Ferrets

Authors: Burim Neziri, Armond Daci, Shaip Krasniqi,
Ramadan Sopi, Musa A. Haxhiu



PII: S1569-9048(16)30271-3
DOI: <http://dx.doi.org/doi:10.1016/j.resp.2017.04.005>
Reference: RESPNB 2798

To appear in: *Respiratory Physiology & Neurobiology*

Received date: 15-11-2016
Revised date: 18-4-2017
Accepted date: 18-4-2017

Please cite this article as: Neziri, Burim, Daci, Armond, Krasniqi, Shaip, Sopi, Ramadan, Haxhiu, Musa A., The Impact of Bilateral Vagotomy on the Physostigmine-induced Airway Constriction in Ferrets. *Respiratory Physiology and Neurobiology* <http://dx.doi.org/10.1016/j.resp.2017.04.005>

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.

The Impact of Bilateral Vagotomy on the Physostigmine-induced Airway Constriction in Ferrets

Burim Neziri¹, Armond Daci², Shaip Krasniqi³, Ramadan Sopi¹, **Musa A Haxhiu**⁴

¹Institute of Pathophysiology, Medical Faculty, University of Prishtina ‘‘Hasan Prishtina’’, 10 000 Prishtina, Kosova

²Department of Pharmacy, Medical Faculty, University of Prishtina ‘‘Hasan Prishtina’’, 10 000 Prishtina, Kosova

³Institute of Pharmacology and Clinical Toxicology, Medical Faculty, University of Prishtina ‘‘Hasan Prishtina’’, 10 000 Prishtina, Kosova

⁴Case Western Reserve University, School of Medicine, Dept. of Pediatrics, 11100 Euclid Avenue, Cleveland, OH 44106, USA

Sadly Musa Haxhiu died before this work was completed for publication.

Highlights

- Investigation of central mechanism in airway constriction after cholinesterase blockage
- Systemic administration of physostigmine evokes airway constriction from central nervous system
- Vagal nerves have a crucial role in regulating respiration process by contraction or relaxation of airway smooth muscle tone
- Inhibition of cholinesterase activity by systemic administration of physostigmine induces increase in cholinergic outflow to the airways by activation of central mechanisms

Introduction

The respiratory airways are innervated abundantly by autonomic sensory and motor nerves (Undem and Potenzieri, 2012). The autonomic nervous system controls airway diameter and bronchial tone (Scott and Fryer, 2012). Even though both its sympathetic and parasympathetic components innervate the airway, the parasympathetic branch dominates throughout control of airway smooth muscle tone and secretions (Undem and Potenzieri, 2012). In general, a complex neural network functions through airway-related, medullary vagal preganglionic neurons to control the airway. These input pre-pre-ganglionic neurons originate from several discrete brainstem nuclei (Haxhiu *et al.*, 1993; Jordan, 2001). In turn, the medullary pre-ganglionic vagal neurons transmit signals to the intrinsic tracheobronchial ganglia and the postganglionic neurons regulate the functions of specific targets (Baker *et al.*, 1986).

The parasympathetic cholinergic network is the primary neural pathway responsible for bronchoconstriction in various mammal species, including humans (Scott and Fryer, 2012).

Download English Version:

<https://daneshyari.com/en/article/5594122>

Download Persian Version:

<https://daneshyari.com/article/5594122>

[Daneshyari.com](https://daneshyari.com)