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Title: Specific airway resistance in vivo - Discussion on irritant induced nasobronchial reflex

Prof. Jana 2654 Plevkova jplevkova@gmail.com MD [1], Dr. Martina 2655 Sutovska sutovska@jfmed.uniba.sk MD [2], Ms. Silvia 2656 Gavliakova silvia.gavliakova@gmail.com [1], Dr. Zuzana 2657 Biringerova z.biringerova@yahoo.com MD [1] and Dr. Eva 2658 Hanuskova eva.hanuskova@gmail.com MD [1]. [1] Department of Pathological Physiology, Jessenius Faculty of Medicine, Comenius University, Martin, Slovakia (Slovak Republic) and [2] Department of Pharmacology, Jessenius Faculty of Medicine, Comenius University, Martin, Slovakia (Slovak Republic) .

Body: Terminals of the trigeminal afferents innervating nasal mucosa are called gate- keepers, since these fibres are the first to detect substances entering the airways. Trigeminal excitation by irritants initiates airway defensive mechanisms, and it is also attributed to the influence of lower airways resistance in terms of nasobronchial reflex. This phenomenon is frequently under debate, because some investigators have been unable to confirm its existence. Pennock's method which is frequently used to measure airway resistance (Raw) in vivo measures total airway resistance. However, the results are commonly misinterpreted as a bronchoconstriction in case of its rise and upper airways are forgotten. 30 Dunkin Hartely guinea pigs, twice adapted to stay in plethysmograph were exposed to nasal stimuli (TRPA1 agonist – irritant allylisocyanate (AITC), TRPM8 agonist with antiirritating potential – menthol and saline as a control). Raw was measured pre challenges as baseline, after nasal provocation, and further after inhalation of 10-6 histamine and 10-6 methacholine. The data showed rise of Raw only after nasal AITC challenge, with further increased responsiveness to histamine and methacholine (5.3 vs. 10.18 vs.11.26 vs 17.32 cmH2O.s-1, $p < 0.05$). No significant changes were detected after saline or menthol. If we stop here, the results could confirm nasobronchial reflex, with increased airway responsiveness. Data obtained in animals divided into two groups, pretreated with decongestant 1% oxymethazoline (to block upper airways) and salbutamol pretreatment (to block lower airways) showed that Raw after nasal irritants rises rather due to nasal response than due to narrowing of the lower airways.