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Title: Inhaled corticosteroids and risk of oropharyngeal colonization by streptococcus pneumoniae in children with asthma

Dr. Linjie 466 Zhang zhanglinjie63@yahoo.com.br MD 1, Dr. Sílvio 467 Prietsch silvio@brturbo.com.br MD 1, Dr. Ana Paula 468 Mendes ftanapaulamendes@hotmail.com MD 1, Dr. Andrea 469 Groll avongrol@hotmail.com MD 2, Dr. Gicelle 470 Rocha laomaoya2000@yahoo.com.br MD 1, Dr. Lillian 471 Carrion lilliancarrion@hotmail.com MD 2 and Dr. Pedro 472 Silva pedrefurg@gmail.com 2. 1 Maternal and Child Health, Faculty of Medicine, Federal University of Rio Grande, RS, Brazil, 96200-000 and 2 Laboratory of Microbiology, Faculty of Medicine, Federal University of Rio Grande, RS, Brazil, 96200-000.

Body: Introduction: recent epidemiological studies have raised concerns about possible link between use of inhaled corticosteroids (ICS) and risk of pneumonia in patients with chronic obstructive pulmonary disease. This cross-sectional study aimed to investigate association between ICS and oropharyngeal colonization by Streptococcus pneumoniae (S. pneumoniae) among children (up to 18 years old) with asthma. Methods: Two age-matched groups of patients were consecutively recruited: 1) Exposed group: children who had persistent asthma and were being treated with daily ICS for at least 30 days; 2) Non-exposed group: children who had asthma and were not being treated with ICS. Oropharyngeal specimens from the tonsillar area and posterior pharyngeal wall were collected. Results: A total of 192 patients (96 in each group) were included in the study. In the exposed group, the mean daily dose of ICS was 400 mcg of beclomethasone or equivalent and the mean duration of treatment was 8.6 months. The prevalence of oropharyngeal colonization by S. pneumoniae was higher among children exposed to regular use of ICS than among those not exposed to ICS (27.1% vs. 8.3%, p=0.001). After adjusting for potential confounders, regular use of ICS was an independent risk factor for oropharyngeal carriage of S. pneumoniae, with an adjusted prevalence ratio of 3.76 (95% confidence interval: 1.73–8.18, p=0.001). Conclusions: Regular use of ICS is associated with an increased risk of having oropharyngeal colonization by S. pneumoniae in children with asthma. These findings highlight the need to further investigate the association between ICS therapy and risk of pneumonia among asthmatic children.