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Title: Capsaicin cough sensitivity in Korean adults

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Body: Background: Cough hypersensitivity is a major factor mediating chronic persistent cough. Capsaicin inhalation cough challenge is a representative tool for assessing cough sensitivity. However, the normal ranges and determinants have not been investigated in healthy Korean adults. Methods: Healthy adult volunteers were recruited by public postings at a single tertiary medical institution. For every volunteer, four age-gender-matched patients with chronic cough (lasting more than 8 weeks) were included. Capsaicin cough challenge tests were performed by dose-response, tidal-breathing method (15 seconds) in 1 minute intervals and the concentration causing five or more coughs (C5) was determined. Results: A total of 65 volunteers (52 females and 13 males) with mean age of 35.5 ± 11.4 (SEM) were recruited. Age, gender, atopy, sputum eosinophilia did not influence capsaicin cough sensitivity. In healthy females, BMI showed moderate negative correlation to C5 (r= -0.353, p= 0.001). Healthy volunteers had significantly higher C5 values compared to the patients (median C5 (IQR): 32 (112) vs 16 (24) respectively; p-value= 0.000). However, in ROC curve analysis, C5 showed poor discriminating value (AUC= 0.329) in identifying clinical cough. Conclusions: Capsaicin cough reflex was examined in Korean adults. Chronic cough patients had significantly more sensitive capsaicin reflex; however, its wide overlap between volunteers and patients may limit its application in the diagnosis of cough patients. The significant relationship between capsaicin sensitivity and BMI in healthy females warrants further consideration in the interpretation of the results.