Hand grip strength is associated with FVC and FEV1 in general population and COPD patients: Analysis of data from Korean National Health and Nutrition Examination Survey

Background: Pulmonary function is related to respiratory muscle strength as well as lung status. Hand grip strength represents general muscle strength and is associated with pulmonary diseases. We aimed to evaluate the relationship between pulmonary function and hand grip strength in general population with and without COPD.

Methods: Data were collected from the Sixth Korea National Health and Nutrition Examination Survey (KNHANES VI–2) in 2014, which included hand grip dynamometer and forced spirometry. We analyzed these data using partial correlations controlled for age, height, and weight.

Results: In general population with normal pulmonary function, the grip strength was significantly positively correlated with FVC, FEV1, and PEFR (r=0.814, r=0.792, r=0.746; p<0.001, respectively) but the result was attenuated by control for age, height, and weight (r=0.460, r=0.429, r=0.382; p<0.001, respectively). Among subjects with COPD, grip strength was significantly related to pulmonary function (r=0.501, r=0.472, r=0.398; p<0.001, respectively), however, this was more attenuated when controlled (r=0.163, p=0.012; r=0.151, p=0.019; r=0.188, p=0.003; respectively).

Conclusion: In this population-based study, stronger hand grip strength was associated with the better pulmonary function in general population with and without COPD, and these results may be influenced by physique.

Prevalence of Tuberculosis-Destroyed Lung and Status of Medication Usage in Patients with Tuberculosis-Destroyed Lung

Objective: To define prevalence of tuberculosis-destroyed lung (TDL) in Korea and prescribing status of respiratory medication in TDL patients.

Method: We reviewed patients with TDL (ICD-10 code: B90, J984) as primary to fifth diagnosis between January 2011 and December 2015, using Korea Health Insurance Review and Assessment Service (HIRA) database.

Result: A total of 645,031 patients from HIRA database were enrolled. Mean age was 59.54 ± 11.91 (mean ± standard error); age under 40, in the 40s, 50s, 60s, 70s and 80 or older were respectively 3.4% (21,657), 19.1% (123,293), 28.6% (184,343), 26.3% (169,531), 17.9% (115,683), and 4.7% (30,524); 44.2% (284,886) were male; 50.2% (323,854) were using systemic bronchodilator. Use of theophylline, inhaled corticosteroid (ICS), long–acting beta-2 agonist (LABA), long–acting muscarinic antagonist (LAMA), ICS/LABA, LABA/LAMA, short–acting beta-2 agonist (SABA), short–acting muscarinic antagonist (SAMA), SABA/SAMA, leukotriene receptor antagonist (LTRA), phosphodiesterase-4 inhibitor (PDE4i) and any of respiratory medication were respectively 35.6% (229,461), 1.4% (9,063), 7.5% (48,514), 11.7% (75,317), 0.4% (2,830), 20.1% (129,603), 11.6% (74,565), 0.1% (564), 31.3% (201,905), 0.4% (2,586) and 71.3% (460,212).

Conclusion: TDL is highly prevalence disease in Korea, and approximately half of the patients with TDL using at least one type of bronchodilator and large proportion of them were form in the inhaler were noted.