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Title: Metabolic syndrome, systemic inflammation and Framingham risk score are independent risk factors for reduced lung function in healthy Korean adults

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Body: Background: We aimed to investigate the association of lung function with systemic inflammation as assessed by high-sensitivity C-reactive protein (hs-CRP), 10-year cardiovascular event risk by Framingham risk score (FRS), and metabolic syndrome (MetS) simultaneously in a large number of healthy Korean subjects. Method: We recruited 9761 (mean age 46 years) apparently healthy adults from medical check-up programme at Kangbuk Samsung Hospital. FRS was calculated and the presence of MetS was defined according to AHA/NHLBI criteria. We analyzed the patients according to the quartiles of FVC or FEV_1 (% of pred) as well as ventilatory patterns. Restrictive pattern (RP) was defined as FVC < 80% and $FEV_1/FVC \geq 70$, and obstructive pattern (OP) was defined as $FEV_1/FVC < 70$. Results: The prevalence of MetS was 9.4%. The adjusted odds ratio (ORa) of MetS for RP was 1.43 (95% CI, 1.22-1.68; $p<0.001$), and that for OP was 1.31 (95% CI, 0.74-2.31;$p>0.05$). When subjects were divided into quartiles of FVC or FEV_1 (% pred), prevalence of MetS, hs-CRP concentration, and FRS event risk >10% significantly increased as the FVC or FEV_1 (% pred) decreased to the lowest quartile. The presence of abdominal obesity, MetS, FRS event risk >10%, hs-CRP were the independent predictors for RP or the lowest FVC (% pred) quartile, while FRS event risk >10% and hs-CRP were independent predictor for OP or the lowest FEV_1 (% pred) quartile even after adjustment for confounders. Conclusion: These results indicate that MetS including abdominal obesity, systemic inflammation, and FRS are important risk factors for reduced lung function in Korean adults.