

## Relationship of self-reported and cotinine-verified smoking status with metabolic syndrome in Korean

<sup>1</sup> Division of Cardiology, Department of Internal Medicine, Kangbuk Samsung Hospital <sup>2</sup> Division of Cardiology, Department of Internal Medicine, Kangbuk Samsung Hospital

\*<sup>1</sup> Hak Soo Kim, MD<sup>2</sup> Byung Jin Kim, MD, PhD

**Background:** Although a recent study reported that cotinine-verified smoking was associated with the prevalence of metabolic syndrome (MetS), there is no data comparing the relationship between self-reported and cotinine-verified smoking with MetS. **Methods:** Among individuals enrolled in Kangbuk Samsung Health Study and Kangbuk Samsung Cohort Study, 116,094 participants (66,875 men, mean age 36.7) between 2011 and 2013. Cotinine-verified smoker was classified as urinary cotinine level above 50 ng/mL. **Results:** The prevalence of self-reported smoking was 38.1% in men and 2.6% in women and that of cotinine-verified smoking was 36.7% in men and 4.0% in women. The overall prevalence of MetS was 15.5% and 3.6% in men and women. The prevalence of MetS in self-reported smoker group was higher than self-reported non/exsmoker group (18.4% vs 8.1%) and that of MetS in cotinine-verified smoker group was higher than cotinine-verified nonsmoker group (18.1% vs 8.2%). Multivariate logistic regression model adjusted for age, sex, BMI, alcohol drinking, exercise, total cholesterol, BUN, creatinine, uric acid, hs-CRP except for MetS components showed that self-reported current smoking significantly increased the odds ratio (OR) for MetS compared with nonsmoking (OR[95% CI], 1.41[1.32, 1.50]). Cotinine-verified smoking and log-transformed urinary cotinine level were associated with MetS, respectively (1.33[1.27, 1.41] and 1.05[1.01, 1.09]). The results for the components of MetS revealed that cotinine-verified smoking was positively associated with TG (>150 mg/dL), HDL-cholesterol (<40 mg/dL for men, 50 mg/dL for women) and glucose (>100 mg/dL), but negatively associated with BP (<130/85 mmHg). However, in the multivariate regression models including the components of MetS, both self-reported current smoking and cotinine-verified smoking did not significantly associated with MetS. **Conclusions:** This large cohort study shows that the degree of agreement between self-reported and cotinine verified smoking status in women is relatively lower than in men. Although urinary cotinine is associated with MetS in both men and women, urinary cotinine could be a conditional factor interacting with traditional MetS components.

## Increased sudden arrest with chronic obstructive pulmonary disease in general population.

Division of Cardiology, Severance Cardiovascular Hospital, Yonsei University College of Medicine, Seoul, Republic of Korea<sup>1</sup>

\*Shinjeong Song, MD<sup>1</sup>, Pil-Sung Yang, MD<sup>1</sup>, Tae-Hoon Kim, MD<sup>1</sup>, Jae-Sun Uhm, MD, PhD<sup>1</sup>, Hui-Nam Pak, MD, PhD<sup>1</sup>, Moon-Hyoung Lee, MD, PhD<sup>1</sup>, Boyoung Joung, MD, PhD<sup>1</sup>

**Introduction:** Chronic obstructive pulmonary disease (COPD) is a major health problem that contributes to substantial morbidity and mortality. Our aim was to investigate whether there is an association between COPD and sudden death in the general population. **Methods:** In Korean National Health Insurance Database Cohort (NHIS-cohort), we studied 495,222 subjects with national health check-up, from 2009 to 2013. Result: COPD was diagnosed in 11,763 patients (2.4%). During the mean follow-up period of 45.5±14.9 months, SCA occurred 989 subjects (637 men). Incidence rates for SCA increased in COPD group, in non-COPD (0.477 per 1000 person-years), in COPD (2.358 per 1000 person-years). In total population crude mortality risk of COPD was hazard ratio 5.00 (95% CI: 4.08 to 6.14,  $p < 0.001$ ). After adjusted with age, sex, and morbidity (hypertension, diabetes mellitus, heart failure, chronic kidney disease, previous myocardial infarction, and smoking status) increasing tendency of SCA continued (age, sex adjusted model 1 : HR 1.55, 95% CI 1.25-1.91,  $p < 0.001$ , model 1 plus morbidity HR : 1.31, 95% CI 1.06-1.62,  $p = 0.014$ ). The risk particularly increased in the male with COPD (HR 1.37, 95% CI 1.04-1.80,  $p < 0.024$ ), but there was no significant difference of SCA in women (HR 1.21, 95% CI 0.86-1.71,  $p = 0.279$ ). **Conclusions:** COPD is associated with an increased risk for SCA in general population, especially in male. This result suggests that COPD should be considered as a useful prognosticator, and therapeutic strategies aimed to treat COPD in male should be investigated.

Figure 1. Kaplan Meier survival curve by COPD and gender.

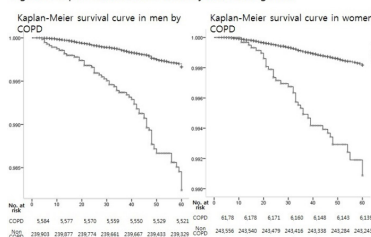


Figure 2. COPD and Risk of Sudden Cardiac Arrest, Multivariable Cox Proportional Models

	unadjusted	Model 1	Model 2
	HR (95% CI) p value	HR (95% CI) p value	HR (95% CI) p value
overall	5.00(4.08-6.14) <0.001	1.55(1.25-1.92) <0.001	1.31(1.06-1.62) 0.014
men	5.09(3.93-6.61) <0.001	1.52(1.16-1.98) 0.002	1.37(1.04-1.80) 0.024
women	5.09(3.65-7.09) <0.001	1.63(1.16-2.29) 0.005	1.21(0.86-1.71) 0.279

Model 1: age, sex adjusted  
Model 2: Model 1 plus HTN, DM, HF, CKD, previous MI, history of stroke, and smoking status

Figure 3. Framingham score by COPD severity and gender

