Introduction: The incidence of lethal ventricular arrhythmia (VA) in patients with chronic obstructive pulmonary disease (COPD) is still unclear.

Methods: We used the data of National Health Insurance Research Database (NHIRD) from January 1st, 2001 (index date) to December 31th 2012. Totally 143,676 patients were comprised and were divided into 2 groups (COPD and without COPD), matched by gender and age. The incidence and risks were assessed during the follow-up period.

Result: Patients with COPD had higher incidence rate of lethal VA compared with patients without COPD [adjust hazard ratio (aHR) 1.45; 95% confidence interval (CI): 1.25-1.68] after adjusting the comorbidities, medications, level of urbanization and monthly income. The times of hospitalization or emergency visit because of acute exacerbation of COPD cause higher risk of lethal VA [aHR: 1.28 (95% CI: 1.08-1.50), 1.75 (95% CI: 1.32-2.32), 1.88 (95% CI: 1.46-2.41) for 1st, 2nd and 3rd time respectively]. The patients with asthma-COPD overlap syndrome (ACOS) had higher risk of lethal VA than patients with COPD only [aHR: 1.49 (95% CI: 1.25-1.79), 1.32 (95% CI: 1.11-1.57) respectively]. With higher CHA2DS2-VASc and ORBIT score, the risk of lethal VA elevated.

Conclusion: Patients with COPD had higher risk of lethal VA and is worsened by acute exacerbation of COPD, mix-type air way disease.