Abstract: 2209

Oxygen therapy in suspected acute myocardial infarction and concurrent chronic obstructive pulmonary disease: a prespecified subgroup analysis from the DETO2X-AMI trial

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Topic(s):
Coronary Artery Disease: Non-pharmacological Treatment

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Background: The DETermination of the role of Oxygen in suspected Acute Myocardial Infarction (DETO2X-AMI) trial did not find any benefit of oxygen therapy compared to ambient air in normoxemic patients with suspected acute myocardial infarction (AMI). Patients with chronic obstructive pulmonary disease (COPD) may both benefit and be harmed by supplemental oxygen. Thus, we evaluated the effect of routine oxygen therapy compared to ambient air in normoxemic COPD patients with suspected AMI.

Methods and Results: A total of 6629 patients with suspected AMI were randomized in the DETO2X-AMI trial to oxygen or ambient air. In the oxygen group (n=3311) and the ambient air group (n=3318), 155 and 141 patients, respectively, had COPD (prevalence of 4.5%). Patients with COPD were older, had more comorbid conditions and experienced a two-fold higher risk of death at one year (COPD: 32/296 [10.8%] vs. non-COPD 302/6333 [4.8%]). Oxygen therapy compared to ambient air was not associated with improved outcomes at 365 days (COPD: all-cause mortality HR 0.99 [95% CI 0.50-1.99, interaction-p=0.96]; cardiovascular death HR 0.80 [0.32-2.04, interaction-p=0.59]; rehospitalization with AMI or death HR 1.27[0.71-2.28, interaction-p=0.46]; hospitalization for heart failure or death HR 1.08 [0.61-1.91, interaction-p=0.77]); there were no significant treatment-by-COPD interactions.

Conclusions: Although COPD patients had twice the mortality rate compared to non-COPD patients, this prespecified subgroup analysis from the DETO2X-AMI trial on oxygen therapy versus ambient air in normoxemic COPD patients with suspected AMI revealed no evidence for benefit of routine oxygen therapy consistent with the main trial’s findings.
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