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Late Breaking Abstract - Metoprolol in Chronic Obstructive Pulmonary Disease without Cardiovascular Disease - a randomized controlled trial

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Background
Beta-blockers may improve outcomes in patients with chronic obstructive pulmonary disease (COPD) without cardiovascular disease, but randomized trials have been inconclusive.

Methods
We conducted a multicenter, open-label, pragmatic, phase 4 randomized trial. Patients 40 years of age or older with spirometry-confirmed COPD, sinus rhythm, and no clinical cardiovascular disease were assigned in a 1:1 ratio to receive metoprolol, target dose 100 mg daily, in addition to standard care, or to standard care alone. The primary end point was the time to the first occurrence of a COPD exacerbation, cardiovascular event, or death during 1 year of follow-up. Outcomes were adjudicated.

Results
A total of 1695 patients underwent randomization; the mean age was 70 years and 62% were women. The primary end point occurred in 27% of patients assigned to metoprolol and in 30% assigned to standard care (hazard ratio 0.87; 95% confidence interval (CI) 0.73-1.05, P = 0.14). The corresponding hazard ratios were 0.88 (95% CI, 0.72 to 1.08) for COPD exacerbations, 0.73 (95% CI, 0.48 to 1.11) for cardiovascular events, 0.92 (95% CI, 0.48 to 1.77) for death, and 0.87 (95% CI, 0.58 to 1.28) for hospitalized exacerbations. In a prespecified subgroup analysis the hazard ratio for the primary end point was 0.70 (95% CI, 0.56 to 0.88) among women and 1.28 (95% CI, 0.94 to 1.74) among men (P for interaction<0.01).

Conclusions
Among patients with COPD and no clinical cardiovascular disease, metoprolol did not significantly reduce the incidence of a composite of exacerbations, cardiovascular events, or death.