



News Release

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Session D104: That Means A Lot: Significance of COPD Comorbidities

Wednesday, May 20, 2015, 1:30 p.m. – 3:30 p.m.

Location: Colorado Convention Center

COPD Is Independent Risk Factor for Cardiovascular Death, But Not Risk of Stroke

ATS 2015, DENVER — Chronic obstructive pulmonary disease, or COPD, is associated with increased risk of dying from a cardiovascular disease such as heart failure or a heart attack, as well as diseases not associated with the heart. However, COPD is not by itself associated with increased likelihood of having a stroke or a systemic embolism, according to a new research study.

Researchers from Duke University and the Mayo Clinic reached this conclusion after analyzing data from a large randomized trial of patients with atrial fibrillation, a condition that produces an irregular heartbeat. The trial, ARISTOTLE (Apixaban for Reduction in Stroke and Other Thromboembolic Events in Atrial Fibrillation), compared the effectiveness of two anticoagulants—apixaban and warfarin--on reducing the risk of stroke or systemic embolism in these patients. A systemic embolism occurs when a clot formed in the heart travels to another part of the body and blocks blood flow; typically, this blockage occurs in the brain, causing a stroke, but systemic emboli can also travel to other organs or a person's extremities.

The researchers examined the data from the 18,206 patients, all with atrial fibrillation, enrolled in ARISTOTLE to explore the connection between COPD and stroke in this patient population. The researchers will present their data during ATS 2015 in Denver, May 15 to 20.

“Other studies have shown that COPD is an independent risk factor for cardiovascular disease, but what hadn't been studied was whether COPD was an independent risk factor for stroke, specifically among patients with atrial fibrillation,” said Michael Durheim, MD, a pulmonary and critical care fellow at Duke. Atrial fibrillation is itself a known risk factor for stroke and

systemic embolism because clots more easily form when blood is pumped irregularly by the heart.

In their analysis, Dr. Durham and his colleagues found that COPD was present in 1,950 (10.8%) of the 18,134 patients for whom pulmonary disease history was available. Patients with COPD were older, more often men and more likely to be current or former smokers. They were also more likely to suffer from other diseases that would put them at higher risk for stroke, including coronary artery disease, a prior heart attack and heart failure.

After adjusting for these and other patient characteristics, COPD was not associated with increased risk of stroke or systemic embolism (adjusted HR 0.86 [95% CI 0.61, 1.21], $p = 0.382$). However, COPD was associated with increased mortality from all causes by 54 percent (adjusted HR 1.54 [95% CI 1.31, 1.82], $p < 0.001$), including both cardiovascular and non-cardiovascular death.

Dr. Durham says that because COPD independently raises mortality in patients with atrial fibrillation, further studies are warranted to “elucidate the mechanisms” by which COPD contributes to increased mortality. The results of those studies, he adds, might change clinical practice.

Meanwhile, he notes one practical outcome of his study: the effect of apixaban compared with warfarin on stroke or systemic embolism did not differ between subjects with and without COPD (HR 0.92 vs 0.78, interaction $p = 0.617$). “The presence of COPD doesn’t need to affect provider’s choice of an anticoagulant,” he says.

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** Please note that numbers in this release may differ slightly from those in the abstract. Many of these investigations are ongoing; the release represents the most up-to-date data available at press time.*

Abstract 65465

Chronic Obstructive Pulmonary Disease is Associated with Increased Risk of Mortality Among Patients with Atrial Fibrillation: Insights from the ARISTOTLE Trial

Type:

Scientific Abstract

Category:

09.03 - COPD: Comorbidities (CP)

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Abstract Body

Rationale: Comorbid chronic obstructive pulmonary disease (COPD) is associated with poor outcomes among patients with cardiovascular disease. The risk of stroke or mortality associated with COPD among patients with atrial fibrillation is not well understood. The objective of this study was to determine the risk of stroke or systemic embolism, all-cause mortality, and cardiovascular mortality associated with COPD among patients with atrial fibrillation and examine whether the effect of apixaban varies by presence of COPD.

Methods: We analyzed patients from ARISTOTLE, a randomized trial of 18,206 patients with atrial fibrillation comparing the effects of apixaban and warfarin on risk of stroke or systemic embolism and bleeding events. The association between COPD (as identified in the medical record) and risk of stroke or systemic embolism and mortality, adjusting for treatment allocation, smoking history and other risk factors, was assessed using Cox proportional hazards regression.

Results: COPD was present in 1950 (10.8%) of 18,134 patients for whom pulmonary disease history was available. Patients with COPD were older, more likely to be male and current or former smokers, with increased burden of comorbidities. In particular, COPD was associated with higher CHADS₂ score and increased burden of cardiovascular disease, including coronary artery disease, prior myocardial infarction and heart failure (all $p < 0.001$). As shown in the **Table**, after adjusting for these and other patient characteristics, COPD was not associated with risk of stroke or systemic embolism (adjusted HR 0.86 [95% CI 0.61, 1.21], $p = 0.382$). However, COPD was associated with a higher risk of all-cause mortality (adjusted HR 1.54 [95% CI 1.31, 1.82], $p < 0.001$). When cause-specific mortality was considered, COPD remained associated with a higher risk of both cardiovascular and non-cardiovascular death. The effect of apixaban compared with warfarin on stroke or systemic embolism did not differ between subjects with and without COPD (HR 0.92 vs 0.78, interaction $p = 0.617$).

| Event | No. events (%/year) | | Adjusted HR (95% CI) | p-value |
|-----------------------------|---------------------|-------------|-------------------------|---------|
| | COPD | No COPD | | |
| Stroke or systemic embolism | 47 (1.36) | 428 (1.44) | 0.86 (0.61, 1.21) | 0.382 |
| Death from any cause | 232 (6.52) | 1037 (3.41) | 1.54 (1.31, 1.82) | <0.001 |
| Cardiovascular death | 113 (3.18) | 537 (1.76) | 1.35 (1.06, 1.71) | 0.014 |
| Non-cardiovascular death | 87 (2.45) | 317 (1.04) | 1.90 (1.46, 2.47) | <0.001 |

All models were adjusted for age, sex, geographic region, systolic blood pressure, diastolic blood pressure, weight, diabetes, hypertension, CAD, moderate valvular disease, left bundle branch block, prior MI, prior stroke/TIA/systemic embolism, prior bleeding, anemia, smoking, type of atrial fibrillation, prior vitamin K antagonist, NYHA class, CHADS₂ score, renal function, and NT-pro-BNP.

Conclusions: In patients with atrial fibrillation, COPD is associated with increased risk of cardiovascular and non-cardiovascular mortality. Future studies should explore mechanisms by which COPD impacts cardiovascular outcomes beyond the effects of shared risk factors.