

COPD increases risk of developing cerebral microbleeds

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Chronic obstructive pulmonary disease (COPD) is associated with an increased risk of developing cerebral microbleeds, according to a new study from researchers in the Netherlands. Cerebral microbleeds are a marker of cerebral small vessel disease, an important cause of age-related disability and cognitive decline.

"The connection between COPD and cerebral small vessel disease was suggested by two earlier studies, but the connection between COPD and cerebral microbleeds, the location of which can help elucidate underlying [disease mechanisms](#), has not been studied," said researchers Lies Lahousse, PhD, of the Department of Respiratory Medicine at Ghent University Hospital in Belgium and Bruno Stricker, PhD, of the Department of Epidemiology at Erasmus Medical Center in Rotterdam, the Netherlands. "In the current study, we found, for the first time, that COPD increases the risk of cerebral microbleeds in deep or infratentorial [brain regions](#), not only in a cross-sectional analysis but also in a longitudinal analysis in subjects without microbleeds at baseline."

Microbleeds in deep (deep gray matter of the basal ganglia and thalamus and [white matter](#) of the [corpus callosum](#), internal, external, and extreme capsule) or infratentorial (brainstem and cerebellum) locations are suggestive of hypertensive or arteriosclerotic disease in the small blood vessels. The prevalence of large vessel disease is known to be increased in COPD, and these new results "indicate that COPD might affect both large and small vessels," said Dr. Lahousse.

The findings were published online ahead of print publication in the American Thoracic Society's *American Journal of Respiratory and Critical Care Medicine*.

The study included 165 subjects with COPD and 645 subjects with normal lung function from the Rotterdam study, a prospective population-based cohort study in subjects ≥ 55 years. COPD diagnoses were confirmed by spirometry and cerebral microbleeds were detected with high-resolution MRI.

Compared with subjects with normal lung function, COPD patients had a significantly higher prevalence of cerebral microbleeds, which was independent of age, sex, smoking status, atherosclerotic large vessel disease, antithrombotic use, total cholesterol, triglycerides, and serum creatinin levels. The prevalence of microbleeds in deep or infratentorial locations was also significantly increased in COPD patients and the prevalence of these microbleeds increased with increasing severity of airflow limitation.

In a longitudinal analysis restricted to subjects without microbleed at baseline, COPD independently predicted incident cerebral microbleeds in deep or infratentorial locations.

The study had some limitations, including the cross-sectional design of the main analysis and the association of COPD with multiple comorbidities, some of which may affect cerebral small vessel disease.

"We have shown that COPD is associated with an increased risk of developing cerebral microbleeds in deep or infratentorial locations," said Dr. Lahousse. "Given the potential cognitive and functional consequences of these microbleeds, preventive strategies for vulnerable patients need to be developed."

Provided by American Thoracic Society

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