Severe COPD may lead to cognitive impairment

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Severe chronic obstructive pulmonary disease (COPD) is associated with lower cognitive function in older adults, according to research from Mount Sinai School of Medicine. Researchers compared cognitive performance in over 4,150 adults with and without COPD and found that individuals with severe COPD had significantly lower cognitive function than those without, even after controlling for confounding factors such as comorbidities.

The results were published in the July 15 issue of the American Journal of Respiratory and Critical Care Medicine.

"Our findings should raise awareness that adults with severe COPD are at greater risk for developing cognitive impairment, which may make managing their COPD more challenging, and will likely further worsen their general health and quality of life," wrote lead author of the study, William W. Hung, M.D., M.P.H., assistant professor at Mount Sinai School of Medicine.

Patients with COPD may experience periods of hypoxia—low oxygen levels—that might lead to brain abnormalities that could reduce cognitive capacity. Alternatively, hypoxia may cause or exacerbate diseases that are characterized by cognitive impairment, such as Alzheimer's disease. Although past studies have observed a higher rate of cognitive impairment among adults with COPD, the relationship has not been formally tested longitudinally in large populations until now.

"We wanted to determine whether the observed relationship between COPD and cognitive impairment was, in fact, something we could document over time, and if so, we wanted to determine whether the degree to which it occurred was significant," said Dr. Hung.

To do so, Dr. Hung and colleagues obtained data from the Health and Retirement Study, a national prospective biennial survey of Americans 50 and older. They included data from survey takers who had undergone cognitive testing in 1996 and again in 1998, 2000 or 2002.

Of the 4,150 individuals ultimately included, 492 had COPD, and of those, about one-third (153) had severe disease. Using a 35-point cognition scale, the researchers found that scores among all patients with COPD declined on average by one point over the six-year period between 1996 and 2002.

After further classifying those with COPD as having severe or nonsevere disease, the researchers found that severity and cognitive decline were linked. Even after controlling for sociodemographic characteristics and other confounding factors, the mean cognition scores for those with severe COPD were significantly lower (0.9 points; $p=0.01$) than those without COPD.

"These objective measures of cognition used in survey research do correlate with functional impairment," said Dr. Hung. In particular, executive functions that require greater cognitive ability, such as handling money and medications, are more poorly performed at greater levels of cognitive impairment. Extrapolating from past research using the same cognitive test, Dr. Hung and colleagues suggest that their findings would likely be associated with a 22 percent increase in the mean number of difficulties the severe COPD population would experience with daily tasks.

"While this number may not appear to be of major concern on the individual level, on a population level, it is roughly equivalent to nearly a quarter of severe COPD patients experiencing difficulty with a basic life skill," said Dr. Hung. "In this regard, these findings have serious implications. Often patients with cognitive difficulties, if undetected and untreated, have lower adherence to their treatment and follow-up regimens, and as a consequence may deteriorate more rapidly and have worse health outcomes."

In conclusion, Dr. Hung suggested that physicians and other clinical staff managing the care of these patients should be aware of their increased risk for cognitive decline and the greater needs and challenges associated with caring for cognitively impaired older adults.

Source: American Thoracic Society (news : web)