Breakthrough discovery will change treatment for COPD patients
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COPD is a chronic, progressive condition that slowly damages the tissues of the lungs. Currently, patients with mild disease, as determined by a lung function test, are given minimal or no treatment.

"These patients often have little to no symptoms, so it was believed their lungs were relatively undamaged," said Hackett. "Now that we know the severity of the damage, we need to look at earlier intervention to ensure the best outcomes for COPD patients."

The new findings also suggest previous large clinical trials testing new COPD treatments may have failed because patients already had substantial lung damage.

"If the same drugs were tested on patients with more mild forms of the disease, and less tissue damage, the results could be very different," said Hackett.

Lung samples from 34 patients were analyzed using an ultra-high resolution microCT scanner, one of only three scanners of this kind in the country. The special scanner, funded by the Canada Foundation for Innovation and St. Paul's Foundation, was instrumental to Hackett's research. Though the HLI Lung Tissue Registry Biobank at St. Paul's has been collecting specimens for more than 30 years, the recent addition of the microCT scanner made it possible to image samples that are embedded in paraffin in extreme detail.

It is estimated approximately one in 10 people over the age of 40 may suffer from COPD. Martin Mannette has been living with the disease for eight years. He is managing well with a careful combination of medication, but the 68-year-old is excited about how this research could impact future patients.

"I worry about COPD taking over as the number
one killer," said Mannette, "so anything we can do
for the next generation so they can avoid COPD is
so important."

Dr. Don Sin, the Canada Research Chair in COPD
and a St. Paul's respirologist, said the findings have
significant implications. By 2020, COPD is
expected to be the third leading cause of death
worldwide.

"This breakthrough finding will allow us to develop
new drugs to treat patients with COPD at the
earliest stages of their disease when the disease is
reversible," said Sin. "This will prevent disease
progression in thousands of patients and help them
stay out of the hospital and remain healthy in their
own homes."

**More information:** Hyun-Kyoung Koo et al, Small
airways disease in mild and moderate chronic
obstructive pulmonary disease: a cross-sectional
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