Bronchoscopy can guide effective treatment for refractory asthma

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(Medical Xpress) -- Using a bronchoscope to visually examine the airways and collect fluid and tissue can help guide effective therapy for difficult-to-treat asthma patients, according to researchers at National Jewish Health. Reporting in the March 2012 issue of the journal *Chest*, the researchers identified five distinct phenotypes among the refractory asthma patients, and successfully treated four of them, often with reduced asthma medications.

“While standard anti-inflammatory treatment with inhaled corticosteroids helps many asthma patients, there is a significant number of patients who need more personalized diagnosis and treatment,” said lead author James Good, MD, professor of medicine at National Jewish Health. “Bronchoscopy provides important clinical information that can help us better treat even the most difficult asthma patients.”

Most tests for asthma involve evaluation of a person’s ability to inhale and exhale air under varying conditions. A bronchoscopy provides a more direct examination of the lungs.

During a bronchoscopy, a physician inserts a small, flexible tube into the nose and threads it into the airways. The bronchoscope has a camera that allows visual inspection of the airways. Fluid can be from the airways, and a biopsy can retrieve small samples of lung tissue. The procedure is usually done with a patient under light sedation.

The research team examined 58 patients with difficult-to-treat asthma,

which is generally characterized as needing oral corticosteroids for more than half the previous year or remaining symptomatic in spite of high doses of inhaled corticosteroids.

Twenty of the patients received standard guidelines-based treatment for four months, followed by a bronchoscopy and personalized therapy. Thirty-eight of the patients received personalized therapy based on the bronchoscopy results. The bronchoscopy included visual inspection of the upper and lower airway, bronchoalveolar lavage, endobronchial biopsy and brush.

The researchers identified five mutually exclusive asthma phenotypes, those with: 1) gastroesophageal reflux; 2) subacute bacterial infection 3) tissue eosinophilia 4) a combination of two or three of these phenotypes; and 5) non-specific phenotype.

Those with gastroesophageal reflux received intense medical therapy or surgery (Nissen fundoplication) for reflux in addition to their standard asthma therapy. Those with subacute bacterial infections received antibiotics, and those with high numbers of eosinophils received omalizumab, also known as anti-IgE. Those with nonspecific phenotypes received no specifically targeted therapy.

After 24 weeks of targeted therapy, patients showed marked improvements in both lung function and in the Asthma Control Test, a five-question survey widely used to evaluate asthma control. Overall, FEV1 (maximum amount of air exhaled in one second) rose from 58.9 percent of predicted (very low) to 74.3 percent of predicted (mild reduction). ACT test scores rose from 11.6 (poorly controlled asthma) to 18.5 (minimally uncontrolled). The test has a maximum score of 25. The 20 patients who received standard, guidelines-based therapy (control period) followed by targeted, bronchoscope-guided treatment, improved only after beginning targeted therapy.

“While our study will require additional studies to confirm the findings, it offers a promising step for doctors and patients who cannot get their asthma under control, “ said Richard Martin, MD, senior author, professor and chair of the National Jewish Health Department of Medicine.

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