

Study shows antibiotic improves respiratory function in lung transplant patients

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Researchers in the United Kingdom have determined that azithromycin, a broad-spectrum antibiotic that also has anti-inflammatory properties, can be an effective treatment option for patients suffering from bronchiolitis obliterans syndrome (BOS), a life-threatening complication that occurs in the majority of patients following lung transplantation.

BOS is the leading cause of mortality after the first year following transplantation, and occurs in part when the body repeatedly rejects the transplanted [lung tissue](#). The syndrome causes the airways to become narrow and obstructed, resulting in a progressive decline in [lung function](#) and, eventually, [respiratory failure](#). The exact full causes of the syndrome are unknown.

The study will be presented at the ATS 2012 International Conference in San Francisco.

The researchers evaluated the potential benefits of [azithromycin](#), a type of antibiotic known as a macrolide, which works by inhibiting the ability of infection-causing bacteria to divide and replicate.

"In open studies, we and others have noted an improvement in lung function in BOS [patients](#) treated with macrolide antibiotics," said study lead author Paul Corris, professor of thoracic medicine at Newcastle University. "Other studies have not observed lung function gain with macrolide therapy, and there have been no [randomized trials](#) to date in patients with BOS."

"In this randomized study, we wanted to determine if patients treated with the antibiotic had improved lung function compared to patients who were treated with placebo," he said.

For their study, the researchers recruited 46 lung transplant patients with BOS and randomized them to receive either azithromycin (250mg on alternate days) or placebo. During the course of the study,

13 patients either withdrew or were withdrawn from the study; data from those individuals were included in a separate intent-to-treat (ITT) report.

To measure respiratory function, the researchers used a common lung function measurement called FEV1 (forced expiratory volume in the first second), which measures the volume of air (in millimeters, or ml) that can be forcibly exhaled in one second after taking a deep breath. By comparing patients' FEV1 values at the beginning of the study to FEV1 measurements made during the 12-week follow-up period, the researchers were able to determine if the patients' lung function had improved after being treated with azithromycin.

At the conclusion of their study, the researchers found that the patients who completed the study had a significant improvement in FEV1, with a mean difference of 358ml from baseline to 12 weeks; by comparison, patients in the placebo group experienced declines in their FEV1 measurements.

"Our randomized trial has confirmed that azithromycin improves lung function in patients with BOS following [lung transplantation](#) and this translates to improved survival for such patients," Dr. Corris noted. "There are ongoing studies trying to elucidate how the drug works which may well give clues to other potentially effective therapies."

More information: "A Randomised Controlled Trial Of Azithromycin Therapy In Bronchiolitis Obliterans Syndrome (BOS) Post Lung Transplantation" (Session D13, Wednesday, May 23, Room 2002-2004, Moscone Center; Abstract 27714)

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