Steroids aid recovery from pneumonia, researchers say

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Dr. Robert Hardy has demonstrated in mice that using corticosteroids as well as traditional antimicrobial therapy might eventually help people with pneumonia recover more quickly. Credit: UT Southwestern Medical Center

Adding corticosteroids to traditional antimicrobial therapy might help people with pneumonia recover more quickly than with antibiotics alone, UT Southwestern Medical Center scientists have found.

Unlike the anabolic steroids used to bulk up muscle, corticosteroids are often used to treat inflammation related to infectious diseases, such as bacterial meningitis. Used against other infectious diseases, however,

steroid therapy has been shown to be ineffective or even harmful.

In a study available online and in a future issue of the *Journal of Infectious Diseases*, researchers at UT Southwestern show that mice infected with a type of severe bacterial pneumonia and subsequently treated with steroids and antibiotics recovered faster and had far less inflammation in their lungs than mice treated with antibiotics alone.

"Some people might think that if you give steroids, it would counteract the effect of the antibiotic," said Dr. Robert Hardy, associate professor of internal medicine and pediatrics and the study's senior author. "But it turns out you need the antibiotic to kill the bug and the steroid to make the inflammation in the lung from the infection get better. The steroids don't kill the bugs, but they do help restore health."

Pneumonia is a lung infection typically characterized by breathing difficulties and spread by coughing and sneezing. Symptoms include headache, fever, chills, coughs, chest pain, sore throat and nausea. Pneumonia caused by the Mycoplasma pneumoniae bacterium is generally a less severe form of the disease that can occur in any age group. It accounts for 20 percent to 30 percent of all community-acquired pneumonia cases.

In the current study, mice infected with the M pneumoniae bacterium were treated daily with a placebo, an antibiotic, a steroid, or a combination of the antibiotic and steroid in order to investigate the effect on M pneumoniae-induced airway inflammation. The animals were then evaluated after one, three and six days of therapy.

"It turns out that the group that got both the antibiotic and the steroids did the best," Dr. Hardy said. "The inflammation in their lungs got significantly better."

Although antimicrobials remain the primary therapy for M pneumoniae infection, there have been several reports in recent years about physicians adding steroids to the treatment regimen of patients with severe cases, Dr. Hardy said. The problem, he said, is that those were individual case reports.

"They never had a control group, so it was impossible to tell what impact the addition of steroids had on recovery," he said.

The new findings not only suggest that giving antibiotics with steroids can help individuals with pneumonia get better faster, but also suggest a potentially more effective therapy for someone in the midst of an asthma attack due to M pneumoniae infection. Up to 20 percent of asthma attacks in children and adults have been shown to be triggered by this bacterium.

Dr. Hardy said it's too early to recommend steroids as standard treatment for people with this type of bacterial pneumonia, but the work does support the need for a clinical trial.

"Or if there are very sick patients, this combination treatment doesn't seem to worsen the disease," he said. "The good thing about our results is the data alone support moving on to a clinical study."

Source: UT Southwestern Medical Center

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