



## Treating Pneumonia with Antibiotics



According to the results of a new study published in the *New England Journal of Medicine* and carried out by researchers at the University Medical Center Utrecht (UMCU), patients with pneumonia can be treated with most common antibiotics which are as effective as the more expensive alternatives.

Despite the fact that there are various types of antibiotics available to patients who are hospitalised for pneumonia, the preferred antibiotics for the initial treatment have yet to be properly investigated. During this study, the researchers compared three different treatment strategies. In seven participating hospitals, one group of patients was started on a beta-lactam antibiotic, a traditional medicine similar to penicillin. A second group was given the same type, combined with a macrolide antibiotic. The third group was given a relatively new fluoroquinolone antibiotic. The last two strategies target a broad spectrum of bacteria.

The treatments were assessed in terms of patient mortality after 90 days. The findings show that mortality was approximately 10% in all groups: 59 out of 656 patients under the beta-lactam strategy died (9.0%). Of the 739 patients following the beta-lactam/macrolide strategy, 82 (11.1%) died. Under the fluoroquinolone strategy, the mortality was 78 out of 888 patients (8.8%). Under each strategy, patients spent an average of 6 days in hospital. The researchers therefore concluded that there is no difference in the effectiveness of these treatment strategies.

In terms of resistance, beta-lactam antibiotics are less likely to be resistant to bacteria as compared to other types of antibiotics. "Dutch doctors already prescribe preferably beta-lactam for patients with non-hospital acquired pneumonia who are admitted to the nursing ward," says Marc Bonten, professor of Molecular Epidemiology of Infectious Diseases at UMC Utrecht and principal investigator of the study. "Although we do see a shift towards the use of broader drugs. This is a harmful development." In countries other than the Netherlands antibiotics are generally used with much less caution.

This study ran over a period of two years and is the first study to directly compare the various antibiotics. All pneumonia patients in the seven hospitals were treated with a single specific strategy which was changed every four months. The study did not include patients who had to be transferred immediately to the ICU or patients who could not be started on or switched to a specific antibiotic from another group. The findings of this study suggest that the results can be applied to everyday practice.

Source: University Medical Center Utrecht

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