

Seven-day antibiotic course delivers similar outcomes to 14-days for Gram-negative bacteraemia

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A seven-day course of antibiotic treatment for Gram-negative bacteraemia (GNB), a serious infection that occurs when bacteria get into the bloodstream, was shown to offer similar patient outcomes as a 14-day course, according to research presented at the 28th European Congress of Clinical Microbiology and Infectious Diseases (ECCMID).

Researchers assessed several primary outcomes, including mortality and whether a patient was readmitted to the hospital or had to remain in hospital longer than 14 days. In the group of 306 [patients](#) treated with a seven-day course, 46%, or 141 patients, experienced these primary outcomes. In the group of 298 patients who received the longer [treatment](#) course, that figure was 50%, or 149 patients.

The findings of a 604-patient clinical trial presented by Dr Dafna Yahav from Tel Aviv University show that mortality rate and other outcomes are similar in the shorter treatment length. Additionally, the shorter treatment may allow patients to return to their everyday activity faster.

"In patients hospitalized with GNB and sepsis resolution before day seven, a course of seven antibiotic days was not inferior to 14 days, reduced antibiotic days and resulted in a more rapid return to baseline activity," Yahav said. "This could lead to a change in accepted management algorithms and shortened antibiotic therapy. Potentially, though we did not show that in our trial, it may lead to reduced cost,

resistance development and adverse events."

GNB is a major cause of morbidity and mortality in hospitalized patients. It occurs when bacteria get into the bloodstream as a result of an infection (e.g. a [urinary tract infection](#)), surgery or the inappropriate use of medical devices (e.g. catheters). There has been little data available to physicians to assist them in assigning the most beneficial length of [antibiotic treatment](#).

Yahav anticipates that healthcare workers will implement shorter treatment protocols based on these findings. "Shorter therapy had no proven disadvantages. As true for all trials, before physicians use our findings to lead their therapy they should verify that our results are valid for their patients. We included patients that were stable at time of randomization, mostly patients with UTI (68%) and with Enterobacteriaceae as the causative organism (90%)."

Yahav and last author Mical Paul assessed the outcomes for patients admitted to three hospitals in Israel and Italy between January 2013 and August 2017. They analysed 90-day outcomes for 604 patients, 306 patients received a seven-day course of [antibiotics](#) and 298 patients received the longer 14-day treatment. Patients with ongoing sepsis or cases where there was an uncontrolled source of infection were excluded from the study.

Additionally, the researchers examined a host of other patient outcomes, such as mortality at 30 and 90 days, whether or not the patient developed secondary infections, if they developed a *Clostridium difficile* infection that can be common after antibiotic treatment. Yahav's team also noted total number of days patients were treated with antibiotics, remained in hospital, their functional capacity, how long it took them to return to everyday activities, any development of resistance or other negative side effects of treatment.

Thirty-six patients on the shorter treatment course, or 11.8%, had died at the 90-day mark compared with 32 patients, or 10.7%, in the longer treatment group.

In the shorter treatment group, the number of antibiotic days was reduced significantly. Those who were part of the short-term treatment arm were treated a median five days compared with those of the long-term arm, which were treated for a median 12 days. This resulted in a reduction of 1,551 antibiotic days and, Zahav said, had the benefit of allowing patients to return to regular daily activities faster. Patients in the seven-day group were able to return to baseline activities in a range of zero to just over eight weeks. The 14-day group saw a slower return to baseline activities, within a range of one to twelve weeks.

More information: Abstract no: O1120, Seven versus 14 antibiotic days for the treatment of Gram-negative bacteraemia: non-inferiority randomized controlled trial, session Clinical Trials, 16:00 - 18:00, Sunday, 22 April 2018, Hall Q

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