

Is PCT Testing Effective in Guiding Antibiotic Therapy?



The use of procalcitonin (PCT) testing to guide antibiotic treatment may reduce antibiotic use in patients with sepsis or suspected sepsis in the ICU and patients with possible bacterial infections in emergency departments (EDs), according to a systematic review published in *Health Technology Assessment*.

PCT is produced in your body and increases when you have a bacterial infection. It can also increase when you have a viral infection, but these increases are usually smaller than for bacterial infections.

Researchers conducted a systematic review of relevant data to assess the clinical effectiveness and cost-effectiveness of adding PCT testing to the information used to guide antibiotic therapy in both ICU and ED patient populations. Twelve databases, including MEDLINE and EMBASE, research registers and conference proceedings, were searched to June 2014.

The reviewers, led by Marie Westwood, PhD, from Kleijnen Systematic Reviews Ltd, York, UK, included 18 randomised controlled trials (eight in ICUs and 10 in EDs) for their analysis. Although none of the ICU studies included children, two of the ED studies were conducted in children. The ICU studies included adults with confirmed or highly suspected sepsis (four studies), adults being treated for suspected bacterial infection and those who developed sepsis during their ICU stay (one study), adults with acute pancreatitis (one study), adults with ventilator-acquired pneumonia (one study), and adults being treated for suspected bacterial infections (one study). Of the 10 ED studies, one was conducted in adults with urinary tract infection; all others included adults or children with respiratory symptoms.

All studies compared guidance on when to start or stop antibiotic therapy that included PCT testing with guidance that did not include PCT testing. In ICU settings, the PCT algorithm was primarily used to inform decisions on when to discontinue antibiotic treatment, whereas in ED settings the primary application was decisions on whether or not to initiate antibiotic treatment.

Results show that guidance that includes PCT testing appears to reduce the amount of antibiotics used, and may reduce hospital and stay. However, it is not clear that PCT testing is the main cause of these reductions, the researchers note.

"There is no indication that PCT testing is associated with increases in adverse effects such as hospital readmission, death, infections, need for help with breathing or other medicines," the authors write. "PCT testing may be cost-saving for adults with sepsis in an ICU setting and adults and children with possible bacterial infection in EDs."

Source: [UK National Institute for Health Research](#)

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