

Biomarker Tests Reduce Unnecessary Antibiotic Prescriptions



On-the-spot tests for bacterial infections, which only take about three minutes to process, may help to reduce excessive use of antibiotics. Researchers in Denmark performed a systematic review showing that doctors who tested for the presence of bacterial infections were prescribing fewer antibiotics. Their findings are published online in *The Cochrane Library*.

Antibiotics fight infections caused by bacteria but not those caused by viruses. In most cases, patients who visit their doctors with acute respiratory infections are suffering from viral infections like the common cold. However, because doctors usually have no immediate way of knowing whether an infection is bacterial or viral, they may still prescribe antibiotics for these patients.

The researchers examined evidence from randomised trials on use of the C-reactive protein test, which is currently the only on-the-spot kit available to general practitioners intended to guide antibiotic prescription. It involves testing a single drop of blood collected by pricking the patient's finger and takes about three minutes for results to appear. C-reactive protein, the researchers noted, acts as a so-called "biomarker" of inflammation and low levels may effectively rule out serious bacterial infection, meaning that the use of antibiotics would be unnecessary.

Improper use of antibiotics gives bacteria more opportunities to develop resistance to the drugs, meaning that common antibiotics are increasingly powerless in treating serious bacterial infections when they do occur. A solution to this problem is to offer on-the-spot tests that can help doctors to better target antibiotic use in people who have bacterial infections.

Data on the use of the C-reactive protein test were obtained from six trials involving a total of 3,284 predominantly adult patients. After analysing the data, the researchers found that:

- 631 out of the 1,685 people who took the biomarker test were prescribed antibiotics, compared to 785 out of the 1,599 people who did not take the test.
- Antibiotic use was 22 percent lower in the group that took the test.
- There was no difference between the two groups in terms of how long patients took to recover.

The results varied considerably between studies, possibly due to differences in the way they were designed, making interpretation of the findings more difficult, the investigators noted.

"(The findings) suggest that antibiotic use in patients with acute respiratory infections could be reduced by carrying out biomarker tests in addition to routine examinations," said lead researcher Rune Aabenhus, who is based at the Department of Public Health at the University of Copenhagen in Copenhagen, Denmark. "Going forward, it would be useful to see more evidence on the size of the reduction and cost-savings, as well as how these tests compare to other antibiotic-saving approaches."

For Aabenhus' team, the C-reactive protein test seems to be safe in its current form. However, in one of the six trials, based on a small number of cases, those who took the biomarker test were more likely to be admitted to hospital at a later date. "This result may have been a chance finding, but it does remind us that general practitioners need to be careful about how they use these tests," Aabenhus said.

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