

Endogenous infection marker guides antibiotic therapy

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The endogenous infection marker procalcitonin can help to guide the use of antibiotics when treating infections. The course of antibiotic therapy is shortened, and its side effects and mortality rate also decrease, as researchers from the University of Basel and other colleagues report in the journal *The Lancet Infectious Diseases*. They conducted a meta-analysis of over 6,700 international data sets from patients with respiratory infections.

Procalcitonin is the precursor of a thyroid hormone that is undetectable or barely detectable in healthy people. If a bacterial inflammation occurs in the body, however, procalcitonin in the blood suddenly increases. This mechanism can be used by medical experts in the diagnosis of infectious diseases, as [antibiotic treatment](#) is only useful for bacterial infections. This is an important factor in respiratory infections, since distinguishing between bacterial and viral infections is often difficult in these cases.

It is already known that using procalcitonin can reduce [antibiotic therapy](#) by around 30%. In various randomized trials - including at the University of Basel - the attending physician was advised whether [antibiotics](#) were necessary or whether they could be stopped, based on the procalcitonin value. This strategy using the biomarker was then compared with a control group that decided on antibiotic use based solely on clinical criteria.

Working against resistance formation

A new meta-analysis led by Professor Philipp Schuetz from the Department of Clinical Research at the University of Basel, the University Hospital Basel and the cantonal hospital of Aarau has now shown that mortality in patients with respiratory infections decreases when treatment is guided by the [infection](#) marker procalcitonin. After 30 days, there was a 14% reduction in relative mortality (from 10% to 8.6%) and a 25% reduction in antibiotic side effects (from 22.1% to 16.3%).

"These results also give us hope that the global trend of antibiotic resistance formation can be countered," comments Schuetz. Twenty-six research groups from 12 countries made the data of 6,708 patients available for analysis - in keeping with the global trend of data sharing, which allows individual patient groups to be better characterized.

More information: Philipp Schuetz et al, Effect of procalcitonin-guided antibiotic treatment on mortality in acute respiratory infections: a patient level meta-analysis, *The Lancet Infectious Diseases* (2017). [DOI: 10.1016/S1473-3099\(17\)30592-3](#)

Provided by University of Basel

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