Steroids may help reduce deaths from all types of tuberculosis

March 12 2013

The routine use of steroids to treat tuberculosis may help reduce deaths from all types of the disease, according to a new review of existing research.

Each year there are 8.7million cases of TB worldwide, and it causes 1.4million deaths. The most common form of the disease (pulmonary TB) affects the lungs, but there are many other forms and it can affect almost all the body's organs.

Currently, steroids are routinely used only for certain types of TB – each of which affects a different organ system – where they have been proven effective as a secondary treatment alongside anti-TB drugs. Exactly how steroids help combat TB is not known, but they are believed to counter the tissue-damaging effect of the inflammatory response caused by the disease.

This latest research – which summarised the findings of existing studies from 1955 to 2012 on the effect of steroids on all types of TB – found that there were 17 per cent less deaths overall among patients taking steroids than those who were not. The study did not demonstrate a difference in death rates between different forms of TB.

The researchers say their findings suggest that steroids could work in a systemic way that is similar for all forms of the disease. Nevertheless, they say further studies are required before steroids should be recommended for all TB patients. Such studies should investigate if the

reduced death rate is seen when looking at current TB drugs only, in studies with greater numbers of patients, and if the benefits of routinely prescribing steroids for all TB would outweigh the risk of harmful side effects. Potential side effects of steroid use include increased vulnerability to other infections.

The research was carried out by a team at St George's, University of London, in partnership with Newcastle University, the University of Liverpool and the Liverpool School of Tropical Medicine. It has been published in The Lancet Infectious Diseases.

The researchers analysed results from 41 previous major TB trials on the efficacy of corticosteroids – drugs based on hormones found in the adrenal gland, which are used to reduce inflammation. They looked at trials involving the five common forms of TB for which steroid trials had been conducted. The types of TB were pericarditis (affecting the heart), meningitis (the brain and spinal cord), peritonitis (the abdomen) and pleurisy (the membranes surrounding the lungs). In total, they examined information on 3,560 patients who took steroids and 2,982 who did not. The types of steroids, the doses and the duration of treatment varied.

As the trials took place over 57 years, the anti-TB combination drug regimens also varied. Rifampicin – the most effective and now most widely used anti-TB drug – was not involved in any of the 19 trials held before 1983. All but one of the trials involving pulmonary TB were held pre-rifampicin. However, the researchers did not observe any difference in death rates of patients taking steroids between current and older treatments.

Lead author Professor Julia Critchley from St George's, University of London said: "There has been debate among clinicians on whether steroids should be routinely prescribed for TB patients. At the moment

they're used in a specific way to target certain organ systems, and they have been proven effective in treating the meningitis and pericarditis forms of TB, but our findings suggest that the effects in one organ system might well apply to the others in terms of an overall reduction in deaths from the disease. There could therefore be benefit in using steroids for all tuberculosis."

But Professor Critchley added: "The quality and amount of evidence we had for each type of TB varied, and most of the trials took place before the emergence of drugs resistant to anti-TB therapies, so we need to do further studies to build up a more comprehensive and up-to-date picture."

Fiona Young, a research associate in public health from Newcastle University who contributed to the study, said: "The efficacy of steroid treatment for all forms of tuberculosis suggests there is an effect on death for TB of all types, although numbers were small.

"Tuberculosis presents a major public health challenge and it's important that we determine the effects of steroids in an era where drug resistance and HIV impact upon tuberculosis treatment outcomes."

More information: Prof Julia A Critchley DPhil, Fiona Young PhD, Lois Orton PhD, Prof Paul Garner MD, Corticosteroids for prevention of mortality in people with tuberculosis: a systematic review and meta-analysis, *The Lancet Infectious Diseases*, Volume 13, Issue 3, Pages 223 - 237, March 2013, doi:10.1016/S1473-3099(12)70321-3
www.thelancet.com/journals/lan … rticle/PIIS1473-3099%2812%2970321-3/fulltext

Provided by St. George's University of London