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Common antibiotic linked to heart problems in patients with lung conditions

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The antibiotic clarithromycin – widely used for treating lower respiratory tract infections like pneumonia and acute exacerbations (sudden worsening) of chronic obstructive pulmonary disease (COPD) – may be associated with an increased risk of heart problems, finds a study published in the *BMJ* today.

The authors say their findings require confirmation, but add to a growing body of evidence suggesting a possible link between long term cardiovascular risks and certain antibiotics, known as macrolides.

Clarithromycin is often used to treat a sudden increase in symptoms for the progressive lung disease COPD - and in community acquired pneumonia - two of the most frequent causes of hospital admission in the UK. Previous studies have suggested that cardiovascular events, such as heart failure, heart rhythm problems, or sudden cardiac death, may be increased during treatment with clarithromycin, but the long term effects are still unclear.

So a team of UK researchers, led by the University of Dundee, set out to examine this association in more detail. They analysed data on 1,343 patients admitted to hospital with acute exacerbations of COPD and 1,631 patients admitted with community acquired pneumonia.

They classified all patients who received at least one dose of clarithromycin during their hospital visit as macrolide users and compared them with patients who did not receive any macrolide

antibiotics during their visit. Over one year, 268 COPD patients and 171 pneumonia patients were admitted to hospital as a result of a cardiovascular event.

In all, after allowing for other factors, 73/281 (26%) of the patients prescribed clarithromycin during acute exacerbations of COPD had at least one cardiovascular event over the next year compared to 195/1062 (18%) of the patients who didn't get this antibiotic (Hazard Ratio 1.50 - where Hazard Ratio is a measure of the number of events per unit time divided by the number of people at risk of the event).

In the same group the Hazard Ratio for acute coronary syndrome (severe angina attacks or heart attacks) was 1.67. Among patients given clarithromycin for community acquired pneumonia, 123/980 (12%) had at least one cardiovascular event compared to 48/651 (7%) not on the drug (Hazard Ratio 1.68). There was no increased risk of acute coronary syndrome.

For COPD, a significant association was also found between clarithromycin use and cardiovascular mortality, but not all cause mortality. In contrast, for community acquired pneumonia, no association was found between clarithromycin use and cardiovascular mortality or all cause mortality.

Longer durations of clarithromycin use were associated with more cardiovascular events. However, use of other types of antibiotics, such as ß-lactams, showed no association, suggesting an effect specific to clarithromycin, say the authors.

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Overall, the results suggest that there will be an additional cardiovascular event for every eight patients given clarithromycin compared to patients not given the drug (or one in 11 for pneumonia).

The data also suggest that the increased risk may persist beyond the time when clarithromycin is stopped. This could be due to clarithromycin's effect on the body's inflammatory process in patients with chronic lung conditions.

The authors conclude that the findings "need to be validated in other datasets before recommendations to change practice can be made."

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