Prophylactic antibiotics for individuals with Chronic Obstructive Pulmonary Disease (COPD): a rapid review

Health Quality Ontario

Record Status
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Authors’ conclusions
The evidence yielded mixed results on the effectiveness and safety of the prophylactic use of the antibiotic azithromycin (AZM) for COPD patients. From the examination of 1 systematic review of RCTs (in Rapid Review, proper): Compared with placebo, prophylactic treatment with AZM in moderate to severe COPD patients at increased risk of future exacerbations significantly:
- increased time to first exacerbation (GRADE quality of evidence: Moderate)
- decreased the frequency of exacerbations (GRADE: Moderate)
- shortened the duration of exacerbations (GRADE: Low)
Compared with placebo, prophylactic treatment with AZM in moderate to severe COPD patients at increased risk of future exacerbations was associated with significant occurrence of adverse events, including:
- GI adverse events (GRADE: Very low)
- hearing impairment (GRADE: Moderate)
- increased likelihood of colonization with macrolide-resistant organisms (i.e., increased risk of macrolide resistance) (GRADE: Moderate)
From the examination of 2 RCTs (in addendum to Rapid Review): Based on a single RCT conducted on COPD patients who had experienced 3 or more exacerbations in the previous year, prophylactic AZM therapy compared with placebo:
- increased the time to first exacerbation
- reduced the frequency of exacerbations
- increased the likelihood of diarrhoea
- reduced the likelihood of colonization with macrolide-resistant organisms (i.e., reduced risk of macrolide resistance), for which no explanation was provided.
Based on a single RCT conducted on COPD patients with chronic productive cough, no difference was found between the AZM and placebo groups in:
- effect on exacerbations
- GI adverse events
The evidence showed both a general trend of beneficial effect on patients’ COPD exacerbation rates and uncertainty around the risk of adverse events and antibiotic resistance associated with prophylactic AZM therapy.

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