Point-of-care testing for group A streptococcal pharyngitis

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Clinical question

In patients with sore throat, how accurate are point-of-care tests in the diagnosis of group A β-hemolytic streptococcal (GABHS) pharyngitis?

Bottom line

Point-of-care testing, including rapid antigen detection and newer nucleic acid detection, is useful for ruling in a diagnosis of GABHS when test results are positive (specificity of 95% to 99%). Nucleic acid detection might be more sensitive than rapid antigen detection (92% vs 85%). While immediate testing and treatment might not always be required, populations at increased risk of GABHS complications, such as Indigenous people in Canada, are more likely to benefit.

Evidence

- Studies of rapid antigen detection tests versus culture (3 systematic reviews of 43 to 98 studies including 18 464 to 101 121 patients) found the following[1-3]:
  - -sensitivity was consistently about 85% and specificity was consistently about 95%, and
  - -the positive likelihood ratio (LR+) was 16.8 and the negative likelihood ratio (LR-) was 0.16.
- Studies of nucleic acid detection tests versus culture found the following:
  - -In 1 systematic review of 6 studies (1937 patients),[3] sensitivity and specificity were 92% and 99%, respectively, LR+ was 92, and LR- was 0.08.
  - -Similar evidence was published after the above reviews (eg, sensitivity of 98% and specificity of 93% to 98%[4,5]).
- There was no significant difference in point-of-care performance between adult and pediatric populations.[1-3]
- Limitations: included studies had high heterogeneity and rapid testing is not currently publicly funded.

Context

- An LR+ above 10 indicates the test helps rule in diagnosis.
- Clinical decision rules (eg, Centor score) have limited predictive value for diagnosing GABHS pharyngitis[6]:
  - -A meta-analysis (11 studies) showed a sensitivity of 49%, a specificity of 82%, and an LR+ of 2.68.
- Empiric treatment for sore throat is common (about 60%).[7] Point-of-care testing might improve appropriate antibiotic prescribing.[8]
- Antibiotics statistically significantly reduce sore throat at day 3 (44% vs 71%, number needed to treat [NNT] of 4), peritonsillar abscess (0.1% vs 2%, NNT=47), and rheumatic fever (0.6% vs 1.7%, NNT=90).[9]
  - -Rheumatic fever data are from before 1950; incidence has declined substantially in developed countries.
- Populations with a higher incidence of GABHS complications, such as Indigenous people in Canada, might be more likely to benefit from antibiotic treatment.[10]
- Many international guidelines consider GABHS pharyngitis self-limiting and do not recommend antibiotic treatment.[11]
- Delayed prescriptions decrease antibiotic use with no significant effect on symptom duration or clinical outcomes.[12]

Implementation

Rapid point-of-care testing cannot distinguish between carriage of GABHS and active infection, nor does it indicate antibiotic susceptibility or strain virulence. Cost effectiveness is uncertain, but given the limited predictive value of clinical decision rules, management guided by point-of-care testing is likely cost effective. However, neither can replace a thorough clinical assessment, and use of these tests should depend partly on whether the result will change therapeutic decisions.

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Competing interests
None declared

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