Sore throat: predictors of complications in primary care

An observational study has found that complications of acute sore throat (quinsy, otitis media, sinusitis and cellulitis) are uncommon in UK primary care, and history and examination are not generally helpful for predicting complications or reconsultations in previously well people aged 16 years or more. Also, complications occurred in similar proportions of patients regardless of whether antibiotics were prescribed or not. Clinicians should continue to follow NICE guidance on self-limiting respiratory tract infections and prescribe immediate antibiotics only for those at risk of suffering severe or prolonged illness, or of developing complications.

Overview and current advice

Antibiotic treatment is unnecessary for most people with acute sore throat who are not at risk of serious complications. NICE guidance on Prescribing of antibiotics for self-limiting respiratory tract infections in adults and children in primary care (Clinical guideline 69) advises that a no antibiotic prescribing strategy or a delayed antibiotic prescribing strategy should be agreed for most people with acute sore throat, acute pharyngitis and acute tonsillitis.

The difficulty for prescribers lies in identifying the small number of people who will suffer severe and/or prolonged illness or, more rarely, go on to develop complications. The NICE clinical guideline provides a safety net whereby high-risk people may be prescribed antibiotics immediately and/or offered further appropriate investigation and management. For acute sore throat, these include people:

- with 3 or more of the Centor criteria (presence of tonsillar exudate, history of fever, presence of cervical lymphadenopathy and absence of cough), depending upon severity
- with symptoms and signs suggestive of serious illness and/or complications (such as quinsy [peritonsillar abscess] or peritonsillar cellulitis)
- who are systemically unwell or at high risk of serious complications because of pre-existing comorbidity.
People who are offered a no antibiotic or a delayed antibiotic strategy should be given reassurance and advice on when to use their delayed prescription and/or reconsult as appropriate. All patients should be given advice on managing symptoms as well as advice about the usual natural history of acute sore throat. The average total length of the illness before and after seeing the doctor is 1 week.

The NICE Evidence topic page and Clinical knowledge summary provide a general overview of acute sore throat. See the NICE guideline and the NICE Pathway on self-limiting respiratory tract infections for more information on managing the condition. In addition, see the recent Medicines evidence commentary that outlines a UK observational study, which found that delayed antibiotic prescribing strategies are as effective as immediate antibiotic prescribing strategies at reducing the risk of suppurative complications, and more effective at reducing reconsultation rates, in people with acute sore throat.

New evidence

A UK observational study has assessed the clinical predictors of complications after presentation for acute sore throat and investigated whether clinical prediction scores for bacterial infection predict common suppurative complications such as quinsy, otitis media, sinusitis and cellulitis.

This prospective cohort study included 14,610 previously well people aged 16 years or more with acute uncomplicated illness for 14 days or less, who presented to their GP with sore throat as the main symptom and had an abnormal pharynx on examination. Baseline characteristics, signs and symptoms were recorded using a standardised clinical proforma. The primary outcome was new diagnosis of suppurative complications recorded in the clinical records in the month after the initial presentation. Reconsultation with new or unresolved symptoms within a month was a secondary outcome.

There were noticeable clinical differences between people who received immediate antibiotics, no antibiotics and delayed antibiotics. For example, fever in the previous 24 hours, pus on the tonsils and severely inflamed tonsils were recorded more frequently in people given antibiotics (statistical significance of differences not reported). Nevertheless, the study found that complications of acute sore throat such as quinsy, otitis media, sinusitis and cellulitis were uncommon and each of these occurred in 0.6% of people or less, regardless of antibiotic strategy, with 1.3% of people developing complications overall.

Only severe tonsillar inflammation (13.0%; odds ratio [OR] 1.92, 95% confidence interval [CI] 1.28 to 2.89; p=0.01) and severe earache (5.0%; OR 3.02, 95% CI 1.91 to 4.76; p=0.01) statistically significantly predicted the development of complications. However, the predictive value of these symptoms was limited and 70% of complications occurred in their absence. There was no evidence that severe tonsillar inflammation or earache predicted the outcome significantly differently between the 3 antibiotic prescribing strategies.

Clinical scores designed to predict bacterial infection statistically significantly predicted complications but only at high scores (Centor criteria 4, p=0.02; FeverPAIN [Fever, Pus, rapid Attendance, severe Inflammation and No cough or coryza] 4 or 5, p=0.01; FeverPAIN [not including rapid attendance] 3 and 4, p=0.02 and p=0.01). These prediction tools had low sensitivity and limited predictive value (odds ratios for predicting complications 1.94, 2.09 and 2.57 respectively) and most complications occurred with low scores (67% with a score of 2 or less using the Centor criteria: 73% with a score of 2 or less using FeverPAIN).

Overall, 14.2% of people reconsulted with new or unresolving symptoms. Gender, age (60 years or more), number of medical problems (1 or more), temperature (more than 37.5°C), fever during the previous 24 hours, and muscle aches statistically significantly predicted reconsultation with new or unresolving symptoms (all p=0.03 or less). Clinical prediction tools for bacterial infection also statistically significantly predicted reconsultation with new or unresolving symptoms but, again, only at high scores (Centor and FeverPAIN scores of 4, both p=0.01). The predictive value of all of these criteria was generally weak (most odds ratios less than 1.5).
This study is an observational study and, although well-designed, it is prone to confounding and bias. For example, the authors note that, although they controlled for the potential confounding effect of antibiotic prescribing, clustering by practice and other significant individual predictors, they may not have accurately controlled for the impact of antibiotics and they could not control for use of non-steroidal anti-inflammatory drugs. To assess selection bias, clinicians were asked to record the details of eligible people who were not entered into the study, but time pressures in busy winter clinics meant documentation was poor. Similarly, recording of baseline criteria for people recruited may have been variable.

The authors note that, although the diagnosis of quinsy and cellulitis is relatively straightforward, the diagnosis of otitis media and sinusitis is likely to be more variable, which could have reduced the power of the study to find associations between history/examination findings and complications.

Commentary

In the study, complications occurred in similar proportions of people regardless of antibiotic strategy and none of the baseline characteristics or signs and symptoms reliably predicted who was likely to experience a complication of an acute sore throat. However, the study reinforces that people can be reassured that complications of acute sore throat are rare. The authors of the study note that complications are uncomfortable but self-limiting (sinusitis, otitis media) and in most cases can be treated with analgesics. Also, those that are often not self-limiting (cellulitis, quinsy) can be treated either with antibiotics in an outpatient setting or with a short hospital admission.

The NICE guideline on self-limiting respiratory tract infections recommends using a clinical prediction tool for acute sore throat. In people with 3 or more Centor criteria, an immediate prescribing strategy may be considered in addition to the reasonable options of a no antibiotic strategy or a delayed prescribing strategy. Although this study suggests that the Centor criteria and FeverPAIN did not usefully predict complications, NICE looked at the full evidence base and concluded that studies in settings where antibiotic use is low and that use 3 or 4 of the Centor criteria for bacterial infection to determine eligibility do show some benefits from antibiotics both for symptom resolution (of the order of 1 to 2 days at a time when symptoms are milder) and for the prevention of complications.

Clinicians should continue to follow NICE guidance and use safety netting to ensure those with acute sore throat who are more likely to suffer severe and prolonged illness may be prescribed antibiotics immediately and/or offered further appropriate investigation and management as clinically appropriate. People who are offered a no antibiotic or a delayed antibiotic strategy should be given reassurance and advice on when to use their delayed prescription and/or reconsult as appropriate. All patients should be given advice on managing symptoms as well as advice about the usual natural history of acute sore throat.

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References

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