Acute sore throat: antibiotic prescription strategies

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A UK observational study has found that delayed antibiotic prescription strategies are as effective as immediate antibiotic prescription strategies at reducing the risk of suppurative complications such as quinsy, impetigo, cellulitis, otitis media and sinusitis, and more effective at reducing reconsultation rates, in people presenting in primary care with acute sore throat. The study supports the approach recommended in the NICE guideline on respiratory tract infections – for those with a sore throat, only those with 3 or more Centor criteria present or who are at increased risk of developing complications should be considered for immediate antibiotic prescribing.

Overview and current advice

Most people will develop an acute respiratory tract infection (RTI) every year, making it the commonest acute problem dealt with in primary care. The NICE guideline on respiratory tract infections - antibiotic prescribing recommends that a no antibiotic prescribing strategy or a delayed antibiotic prescribing strategy should be agreed for people with a number of common respiratory tract infections including acute sore throat, acute pharyngitis and acute tonsillitis when fewer than 3 Centor criteria* are present. The guideline recommends that people should be given advice about the usual natural history of the illness, including the average total length of the illness, which for acute sore throat, acute pharyngitis and acute tonsillitis is 1 week.

NICE also provides guidance on identifying people with RTIs who are likely to be at risk of developing complications and to whom an immediate antibiotic prescription and/or further appropriate investigation and management should be offered:

- those who are systemically very unwell
- those with symptoms and signs suggestive of serious illness and/or complications
- those at high risk of serious complications because of pre-existing comorbidity
- people older than 65 years who also have certain other risk factors (see the guidance).
In 2013, a Cochrane review that assessed the benefits of antibiotics for treating sore throat in primary care settings found that although antibiotics provide some benefits for treating sore throat, these benefits are modest and the number needed to be treated with antibiotics to avoid complications in 1 patient is high. Another Cochrane review that evaluated using delayed prescriptions compared with immediate or no antibiotics as a prescribing strategy for acute RTIs found that delayed prescriptions slightly reduced patient satisfaction compared with immediate prescriptions but not compared with no antibiotics. Both delayed and no antibiotic strategies still achieved over 80% patient satisfaction rates. The review concluded that where clinicians feel it is safe not to prescribe antibiotics immediately, a strategy of no antibiotics with advice to return if symptoms do not resolve is likely to result in the least antibiotic use, while maintaining similar patient satisfaction and clinical outcomes to a strategy of delayed antibiotics.

See the NICE Clinical Knowledge Summary for a general overview of the care of people with acute sore throat, differential diagnoses and management recommendations. See the NICE evidence topic page on sore throat for a general overview of the condition.

New evidence

A UK observational study has compared the effect of 3 antibiotic strategies (no antibiotic prescription, immediate antibiotic prescription and delayed antibiotic prescription) on the development of suppurative complications (quinsy, impetigo, cellulitis, otitis media and sinusitis), or reconsultation with new or non-resolving symptoms, in people presenting in primary care with sore throat.

The authors recruited general practitioners in England and Wales who reported prescribing immediate antibiotics to 50% or fewer people with tonsillitis. The study cohort included 11,950 previously healthy people aged 16 years and over (mean age about 34 years) with acute illness (duration of 14 days or less) presenting with sore throat as the main symptom, or whose throat was abnormal on examination. A baseline proforma was completed documenting age, sex, smoking status, previous duration of illness, and the presence and severity of baseline symptoms (such as sore throat, difficulty swallowing and fever). Symptoms were recorded using a 4-point Likert scale (none, a slight problem, a moderately bad problem, or a severe problem), and the presence of signs such as pus, temperature and difficulty speaking due to sore throat was also recorded.

Clinicians recorded their prescribing strategy which included immediate antibiotic prescriptions in 5750 (48%) people, delayed antibiotic prescriptions in 1664 (14%) people, and no antibiotics in 4536 (38%) people. The primary outcome was the development of suppurative complications within 1 month of the index presentation as assessed by staff in general practices, or by staff of the primary care research network, based on review of the patients' notes. The secondary outcome was reconsultation with non-resolving symptoms or development of a new respiratory diagnosis, symptom or sign within 1 month of the index presentation.

No non-suppurative complications of glomerulonephritis or rheumatic fever were recorded. Overall, 164 of 11,950 (1.4%) people developed suppurative complications, and of these the most common complications were otitis media (66 people, 40%), quinsy (45 people, 27%) and sinusitis (35 people, 21%). After adjusting for clustering by general practitioner and significant covariates (inflamed tonsils, fever in the past 24 hours, feeling generally unwell, and disturbed sleep), the risk of suppurative complications was lower for both those prescribed delayed antibiotic prescriptions (relative risk [RR] 0.58, 95% confidence interval [CI] 0.34 to 0.98, number needed to treat [NNT] 174) and immediate antibiotic prescriptions (RR 0.62, 95% CI 0.43 to 0.91, NNT 193), compared with those not prescribed antibiotics.

After adjusting for clustering by general practitioner and significant covariates (number of medical problems, age, sex, fever in the past 24 hours, and muscle aches), reconsultation rates with new or non-resolving symptoms were also lower for those prescribed delayed antibiotic prescriptions (RR 0.61, 95% CI 0.50 to 0.74, NNT 18) and immediate antibiotic prescriptions (RR 0.83, 95% CI 0.73 to 0.94, NNT 40) compared with those not prescribed antibiotics.
Commentary

Antibiotic resistance poses a significant threat to public health, especially because antibiotics underpin routine medical practice. The number of prescriptions for antibiotics in primary care in England has been steadily increasing over the last decade, and in the year 2012/13 the rate per head of population was greater than the peak seen in the late 1990s (personal communication, NHS Business Services Authority). To help prevent the development of resistance it is important to only prescribe antibiotics when they are necessary, and not for self-limiting mild infections such as colds and most coughs, sinusitis, earache and sore throats.

Concern about complications is likely to be one of the reasons GPs prescribe antibiotics. This large prospective observational study has some important messages for prescribers in primary care:

- **The risk of suppurative complications is low in people presenting with sore throat in primary care in the UK** (about 986 people in every 1000 in the study did not develop them), and many complications that do occur are minor and self-limiting, such as otitis media and sinusitis.

- **Providing a delayed prescription was about as effective in preventing suppurative complications as providing an immediate prescription.** However, many people need to be treated for 1 to benefit, whichever of these strategies was adopted (NNT 174 for the delayed antibiotic strategy and 193 for the immediate antibiotic strategy, compared with no antibiotic strategies).

- **Using a delayed antibiotic strategy was likely to result in fewer people reconsulting than giving an immediate prescription.** On average, for every 18 people given a delayed prescription, 1 did not reconsult who would have done had they not been given an antibiotic, whereas on average a GP needed to give immediate antibiotics to 40 people to prevent 1 of them reconsulting who would have done had they not been given antibiotics at all.

The observational nature of this study means it can only suggest association between different antibiotic prescription strategies and the effect on suppurative complications and reconsultation rates. The general practitioners in this study were recruited because they reported prescribing immediate antibiotics to 50% or fewer people with tonsillitis. Therefore they may not provide an accurate representation of all general practitioners in England and Wales. The study does not describe how the delayed antibiotic strategy was employed, for example if people were given the prescription to take away but advised not to have it dispensed unless needed, or if the prescription was left at the surgery and the person was asked to call back for it if they needed it. The study also did not describe how many people that were issued a delayed antibiotic prescription had their prescription dispensed. Therefore the effect of issuing a delayed prescription on antibiotic consumption cannot be determined from the study. An editorial from 2003 in the British Medical Journal discussed controlled trials of delayed antibiotic prescription strategies in people with RTIs and suggested that the largest reductions in antibiotic consumption occurred in studies that required patients to return to the surgery to collect the prescriptions.

The study supports the approach recommended in the NICE guideline on respiratory tract infections - antibiotic prescribing, which suggests offering an immediate antibiotic prescription to people who are likely to be at high risk of complications (see Overview and current advice). However, for people with acute sore throat, acute pharyngitis or acute tonsillitis who are not likely to be at high risk of complications and have fewer than 3 of the Centor criteria*, issuing a delayed prescription instead of issuing antibiotics immediately may be a useful strategy to try to reduce the risk of complications and reconsultation, if this is felt safe in the person’s individual circumstances.
Study sponsorship

This observational study was funded by the UK Medical Research Council.

* Centor criteria are:
  
- presence of tonsillar exudate,
- tender anterior cervical lymphadenopathy or lymphadenitis,
- history of fever
- an absence of cough.

(From NICE clinical guideline 69 – respiratory tract infections – antibiotic prescribing)

References


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