Important New Evidence Service

In Partnership with The Centre for Medicines Optimisation at Keele University

ScriptSwitch™ Rapid Update 1 – November 2017

Respiratory Tract Infections: UK observational study provides evidence to support the option of shorter penicillin courses for sore throats

The September 2017 update to the Public Health England (PHE) infection guideline includes a slight change to the recommended duration of first-line antibiotics (*where antibiotic treatment is indicated*) for acute sore throat in adults, from a 10-day course of phenoxymethylpenicillin (penicillin V) to a **5 to 10** day course. This option for a shorter course was informed by a new analysis of a large UK cohort of adults presenting to primary care with sore throat, which found little difference in the re-consultation rates and symptomatic outcomes between patients receiving shorter and longer courses of antibiotics.

Recommendations for longer treatment courses have traditionally been based on older studies that focused on bacterial eradication - an important outcome if the aim of treatment is to prevent complications. However, rates of serious complications are nowadays very low, and the 'no' or 'delayed' prescribing strategies recommended in current PHE guidance will be appropriate for most patients where the goal is symptom relief. Where antibiotics are indicated, this new analysis provides some reassurance for prescribers opting to prescribe a shorter antibiotic course. CCGs may wish to check that their local guidance has been updated in line with the new PHE recommendation.

NICE is currently developing guidance on antimicrobial prescribing for a number of common infections, including sore throats - Keele will provide a further update following publication.

Reference: Moore M, Stuart B, Hobs FDR *et al.* Influence of the duration of penicillin prescriptions on outcomes for acute sore throat in adults: the DESCARTE prospective cohort study in UK general practice. British Journal of General Practice. Published online 14 August 2017; bjgp17X692333

What do we know already?

- Acute sore throat (including pharyngitis and tonsillitis) is self-limiting and usually triggered by a viral infection of the upper respiratory tract. Symptoms can last for around 1 week and most people will get better within this time without treatment, regardless of whether their illness is caused by a bacteria or a virus (Spinks *et al*. 2013).
- For decades, phenoxymethylpenicillin has been the preferred treatment option if antibiotics are required, due to its proven efficacy, safety, narrow spectrum and low cost, with a 10-day course often recommended as standard care due to concerns about serious complications of sore throat (Altamimi *et al*. 2012). However, the incidence of serious complications arising from sore throats (including rheumatic fever and glomerulonephritis) is now very low in developed countries, and there is a need for more evidence on the appropriate duration of treatment in the modern era where the effective use of antimicrobials is a priority. (*See the NICE Guideline and Key Therapeutic Topic on antimicrobial stewardship for further information*).

What does this evidence add?

- This secondary analysis of the DESCARTE study cohort included 12,829 adults presenting to routine primary care in the UK with acute sore throat. 7,474 patients received antibiotics, with roughly three-quarters prescribed immediate antibiotics and the remaining delayed antibiotics. The most commonly prescribed antibiotic was phenoxymethylpenicillin (76% of prescriptions), with most prescriptions being for a 5- (20%), 7- (57%) or 10-day course (22%).
- There were some small differences in the rates of re-consultations for new or non-resolving symptoms in people receiving a 5-day (15.3%), 7-day (13.9%) and 10-day (12.2%) antibiotic course, but these differences did not achieve statistical significance, with the authors concluding any effect is likely to be small. Assessments of symptomatic outcomes were also generally similar between the different antibiotic durations. The study also confirms phenoxymethylpenicillin as the first-choice antibiotic for sore throats.

- Possible advantages of a shorter antibiotic course include better adherence to treatment, reduced risk of adverse events, reduced likelihood of antimicrobial resistance and cost savings. Limitations of this study include its observational design and thus the potential for residual confounding. A randomised controlled trial (RCT) would strengthen the conclusions of this study, and we note that a Swedish RCT is underway to compare 5 and 10 days of phenoxymethylpenicillin. It is also notable that the mean FeverPAIN score (*a clinical scoring system [available online], the use of which is now advocated in PHE guidance*) was between 1.72 and 2.36 across the groups. This suggests that many people may not have required immediate antibiotics if assessed against current PHE guidance that recommends considering immediate antibiotics if symptoms are severe, or possibly a short (48 hrs) delayed prescribing strategy, where the FeverPAIN score is ≥ 4.

Study details

Participants:

- Adults (aged 16 years and over) presenting to their GP with acute sore throat and an abnormal examination of the pharynx (n = 12,829).
- In total, 7,474 people were prescribed antibiotics and were included in the analysis.
- A symptom diary was randomly allocated to a proportion of participants, covering the following symptoms: sore throat; difficulty swallowing; feeling unwell; fevers; sleep disturbance. Patient diaries were completed and returned by 922 participants.
- Unlike other recent studies that compared antibiotics in sore throat, participants were not required to have a positive streptococci throat swab (confirming a bacterial cause). The mean FeverPAIN score at baseline was 1.72 (5-day group), 1.94 (7-day group) and 2.36 (10-day group).

Intervention and comparison:

- The most commonly prescribed antibiotic was phenoxymethylpenicillin (penicillin V) (76%; 5,656/7,474), with most prescriptions for 5-day (20%), 7-day (57%) or 10-day courses (22%). The doses prescribed were not reported in the study.
- Approximately, three-quarters of antibiotics were prescribed using immediate prescriptions, with one-quarter prescribed as delayed prescriptions.
- The choice of treatment was influenced by the type and severity of symptoms at baseline. Those receiving shorter courses of antibiotic were less likely to have a history of fever or pus on the tonsils (this is reflected in their lower FeverPAIN [and Centor] scores). People receiving antibiotics other than phenoxymethylpenicillin had less severe symptoms, and those people given immediate antibiotics were more likely to have severe symptoms, a fever and severe inflammation or pus on tonsils.

Outcomes and results:

- The primary outcome was re-consultation (with progression or non-resolution of illness) within 1 month of initial consultation.
- Secondary outcomes (only reported for patients who kept a diary) were:
  - Worse symptomatic outcomes
  - Duration of moderately bad symptoms
  - Symptom severity on day 2-4
- Re-consultation rates were lower in the 10-day group (12.2%) compared with the 7-day (13.9%) and 5-day (15.3%) groups, although when adjusted for propensity to prescribe antibiotics the difference became non-significant (Relative Risk [RR] 0.86, 95% Confidence Interval [CI]: 0.59 to 1.23; p = 0.408 for 10-day *vs.* 5-day course).
- Similar results were observed when adjusting for baseline severity and controlling for clustering of patients by practice.
- Antibiotics other than penicillin were associated with a statistically significant greater risk of re-consultation.
- The risk of adverse symptomatic outcomes *(measured as a greater than median symptom severity in days 2 to 4, or a greater than median duration of symptoms*) was similar in those prescribed 5- and 7-day courses. The difference in adverse outcomes between 5- and 10-day courses was dependent on the method used to control the data: adverse outcomes were similar when controlling for baseline differences (RR 1.13, 95% CI: 0.95 to 1.35, p = 0.162), but were slightly worse when adjusting for propensity to prescribe (RR 1.22, 95% CI: 1.02 to 1.46, p = 0.026).

Level of evidence: Level 2 (limited quality patient-oriented evidence) according to the SORT criteria.

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