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Can we achieve shorter antibiotics course in primary care?

Michael Wilcock, Alastair Hay

Achieving shorter antibiotic courses in primary care?

Around three-quarters of all UK antibiotic prescriptions are issued in the community¹ and the UK Government antimicrobial stewardship target is to reduce community antibiotic use by 25% by 2024 from the 2013 baseline.² Of all primary care prescribing settings (general practice, dental, other community settings), general practices prescribe the majority of items (85.6% of all antibiotic prescriptions in England in 2019), though the number of general practice prescriptions has reduced by 14.3% since 2015.¹ In general practice, there has been a focus on reducing inappropriate prescribing, managing patient expectations around antibiotics, and promoting the concept of delayed prescribing.³ However, unlike in secondary care where the 'Start Smart then Focus' campaign prompts review of the clinical diagnosis and the continuing need for antibiotics at 48-72 hours,⁴ there has been less attention in primary care on limiting the duration of treatment by using shorter courses.

Current practice

A large cross-sectional study of UK prescribing data found that the duration of antibiotic prescriptions for common infections in primary care frequently exceeded national guideline recommendations.⁵ For 13 indications combined, about 1.3 million days were beyond the durations recommended by guidelines, mainly due to respiratory conditions, which accounted for more than two-thirds of prescriptions, and where antibiotics have only modest effects. Fewer prescriptions exceeded the course length recommendations for non-respiratory indications, but more than half of prescriptions for cystitis in women (55%) were longer than recommended. On average, people were supplied with an extra two days of antibiotics for bronchitis and four additional days for acute cystitis when compared to national guidance.³

Antibiotic treatment duration for many infections is typically based on convention rather than evidence, using arbitrary course lengths such as 7, 10 and 14 days with the main aim to avoid under treatment.⁶ Some evidence for shorter courses for primary care indications is emerging, such as in community-acquired pneumonia, severe tonsillopharyngitis caused by group A streptococcus, and in acute bronchitis^{6,7,8,9,10} Unfortunately, the evidence base for shorter courses of specific antibiotics for specific common infections remains sparse being composed of a limited number of clinical trials that have established non-inferiority of shorter regimens.

National guidelines

The National Institute for Health and Care Excellence (NICE) guidance on managing common infections has a very limited evidence base for duration of therapy and includes treatment duration ranges for the prescriber to select.¹¹ For acute otitis media NICE recommends 5 to 7 days, and for acute pyelonephritis 7 to 10 days. For acute exacerbation of bronchiectasis NICE recommends 7 to 14 days with course length to be based on severity of bronchiectasis, exacerbation history, severity of exacerbation symptoms, previous culture and susceptibility results, and response to treatment. The advice for acute sore throat is for 5 days of phenoxymethylpenicillin for symptomatic cure, or 10 days for microbiological cure. To some extent a range of treatment duration may be necessary in that primary care guidelines have to provide broad recommendations to cover all age, severity and co-morbidity groups. Unlike the secondary care approach of 'Start Smart and Focus', which allows for personalisation of treatment according to the initial response, primary care physicians do not have an opportunity to review and alter the initial prescribing decision.

Clinicians' concerns

Compounding this paucity of evidence for treatment duration, interviews and surveys of doctors acknowledge that diagnosing serious infections is perceived to be a challenge in primary care, and also suggest that prescribing is more often motivated by fear of undertreating than by concerns of adverse effects or longer-term consequences associated with the use of the antibiotics themselves.^{12,13} By using shorter treatment courses, overall antibiotic exposure is lessened, reducing the selection pressure for multidrug-resistant organisms.¹⁴ However, there is a balance with too short a treatment course possibly leading to a relapse of the infection.¹⁵

The need for evidence

Although research has been conducted into utilising clinical decision-making tools and clinical parameters such as low procalcitonin to discontinue antibiotic therapy in hospitalised patients with rapid response to treatment,^{16,17} further high-quality evidence supporting the safety of shorter treatment courses in a primary care setting is needed. We therefore welcome the call by the National Institute for Health Research for research that compares the use of shorter and longer (standard) fixed course antibiotic treatments, where there is potential to change prescribing practice in the UK.¹⁸

However, a more robust evidence base will not of itself change practice and improve the quality of antibiotic prescribing.¹⁹ If the evidence for shorter antibiotic courses is to be accepted by patients and prescribers, we would need to be sure that patients understand

how long symptoms should be expected to last with and without antibiotic treatment.²⁰ A 2017 survey identified that of 1,347 respondents prescribed an antibiotic, in only 12% of instances was advice given on the length of time the infection was expected to last.²¹ Moreover, in addition to standard public health campaigns encouraging patients and prescribers to avoid inappropriate use of antibiotics, and information for patients to understand how long symptoms typically last, we consider there could be a focus on raising awareness of the benefits of shorter, rather than longer courses.

Antibiotic prescribing behaviour is influenced by a myriad of factors, including clinician-related (e.g. knowledge of guidelines, experience) and patient-related (e.g. clinical presentation, treatment expectation).²² In addition, the manner in which the consultation is delivered may also impact on antibiotic prescribing.²³ Though the standard key messages of not prescribing for minor self-limiting conditions or viral infections, and the provision of safety netting advice when choosing not to prescribe are worthy of re-emphasis, it is recognised that different behaviour change approaches are also needed. Hence, optimization of antibiotic prescribing in primary care requires interventions and solutions that go beyond targeting individual behaviour change and address social and contextual influences, such as clinician's perceptions of others' prescribing, any medico-legal concerns and work pressure.^{23,24}

In summary, advantages of shorter versus longer courses could be considered at the population level by reducing the likelihood of resistance developing²⁵, and at the patient level through reduced side effects. Disadvantages are under-treatment, particularly in the elderly who are at much higher risk of complications²⁶ though this could be mitigated by using shortest courses in those least likely to be harmed by this, and patient expectations leading to repeat consultations because their symptoms have not improved. In answer to the question posed in the title of this article, then yes there is room for improvement, accepting that it is preferable not to prescribe than to prescribe a short course when antibiotics are not needed.

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