

To the Editor,

COMMENT #1

Dear colleagues,

I read your article on bacterial resistance published in the March 2010 issue of the DTB-Navarre with great interest. Let me congratulate you for the clarity of the statements. In the primary care setting most antibiotics are used for the treatment of upper respiratory infections.

Let me please ask you some questions about antibiotic use, does intermittent use or early stopping of antibiotics lead to bacterial resistance? Should the antibiotic treatment be resumed or should a different one be started out? According to my personal experience, the posology is not always precise, eg, the drug is taken along with the meals but not every eight hours exactly. Does it also lead to antibiotic resistance?

Finally, I think that streptotest should be more widely used in order to avoid empiric treatments that frequently lead to an irrational use of antibiotics by prescribing wide spectrum ones. Identification of the bacteria involved in a tonsillopharyngitis or pneumonia event could decrease the proportion of empiric treatments. Let me also point out that differential diagnosis between bronchitis (usually of viral origin) and pneumonia is seldom addressed and thereby irrational use of antibiotics, particularly macrolides (claritromycin and azitromycin), runs high in this clinical setting in Spain.

There is a lot of work to be done to get clinicians manage properly these diseases that are of viral etiology in 80-90% of the cases. This aspect should be stressed in order to avoid the practice of defensive medicine.

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AUTHORS' REPLY

In first place we would like to thank you for your comments. We are pleased to answer your questions one by one.

Does intermittent use or early stopping of antibiotics lead to bacterial resistance? Should the antibiotic treatment be resumed or should a different one be started out?

Lack of adherence to antibiotic treatment can lead to two main complications:

1. It has been associated with bacterial resistance to antibiotics as described by the WHO in a report on the global increase of bacterial resistance (<http://www.who.int/mediacentre/factsheets/fs194/en/>). The presence of some multi-resistant strains of *Mycobacterium tuberculosis* has also been described after antibiotic treatment failure.

2. In case of bacterial infection that requires the use of antibiotics, the inappropriate use could lead to relapse. If intermittent use or early discontinuation of the drug, the type of infection, amount of skipped doses, severity of the condition and type of microorganism should all be considered. Antibiotic treatment could be resumed or a new antibiotic started out instead if a resistant strain is suspected. The approach must be done on an individual basis yet there is no unique solution to the problem.

G penicillin benzatine (im, one single dose) becomes a sensible option for the treatment of tonsillopharyngitis ensuring that compliance is guaranteed.

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The importance of achieving plasmatic concentrations of the drug above the Minimum Inhibitory Concentration (MIC) and thereby adequate levels at the infection site will depend on the following factors among others:

- *Type of antibiotic.* This is especially relevant in the case of beta-lactamic antibiotics but not really important for aminoglycosides yet the latter can be administered in one only dose daily.
- *Type of bacteria.* Amoxicillin MIC for *S. pyogenes* is rather low and it is easier to achieve therapeutic drug levels for *S. pyogenes* than in the case of *S. pneumoniae* yet a higher amoxicillin MIC is required.
- Not meeting the *precise intervals* does not seem to pose a big problem if the time difference is not really important and the infection is not severe either. Please note that it is quite frequent to prescribe the same dose to patients weighing some 100 kg or those below 60 kg. Drug plasma concentrations will differ between them but, in spite of it, the antibiotic will do the trick in both groups of patients. However if the patient is in a poor condition or several doses have been skipped treatment failure could happen.

publication of ongoing trials in our setting that could shed light on this topic.

3. In our article we mention a European multicenter trial (reference #47) in which the use of antibiotics in patients suffering from cough or lower respiratory symptoms ranged from 20% to 90% without any clinical differences in the outcomes. This shows there is large room for improvement. In the Navarre Regional Health Service in Spain a similar variability can be observed (figure 6 in the article).

4. We think it is worth to address this topic in the GP's clinical sessions to achieve a more rational use of antibiotics.

Regarding your last comments...

1. We fully agree that the streptotest should be used in the primary care setting in Spain.

2. We also agree with your comment on the differential diagnosis between bronchitis and pneumonia. We admit that making the differential diagnosis is not always easy and that is why we included both conditions along with CPOD exacerbations in the same section of the article. We also included the recommendations of the Scottish Guide which is very useful for the reader. We also commented on the controversy regarding the C protein test pending the