Place of newer quinolones and rifampicin in the treatment of Gram-positive bone and joint infections

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Sir,

We have read with interest the article by Darley & MacGowan1 and would like to comment on some aspects.

Firstly, it is stated that newer quinolones, e.g. moxifloxacin and levofloxacin, should not be considered in antibiotic treatment of Gram-positive bone and joint infections because data on penetration, efficacy and use against Gram-positive pathogens other than Streptococcus pneumoniae are not yet available. However, the MICs of these newer agents for Staphylococcus aureus are at least 8–10 times lower than those of ciprofloxacin. This is particularly true for moxifloxacin which presents a lower propensity than levofloxacin or ciprofloxacin to select, in vitro, resistance among staphylococci. Levofloxacin, in combination with surgical debridement, was considered safe and effective in a prolonged course of antibiotics for chronic osteomyelitis.3 Moxifloxacin showed good concentration and significant bactericidal activity against Gram-positive organisms in synovial fluid samples obtained during arthroscopy for knee arthroplasty.3

Secondly, rifampicin is often considered a key drug in antibiotic combinations for bone and joint infections,1,4 but recommendations about frequency of administration and dosage are not available. We consider that rifampicin should be administered orally at a dosage of 10–20 mg per kg per day given in two divided doses. Indeed, the serum half-life of this drug becomes shorter within the first week of treatment because it induces enzymes in the liver which increase its own metabolism.5 Moreover, a constant concentration seems necessary during therapy.

Thirdly, linezolid seems an attractive option for prolonged oral therapy despite only bacteriostatic activity. However, unexpected serious adverse events can occur when linezolid therapy is administered for >28 days (such as in peripheral or optic neuropathy) and both clinicians and patients should be aware of this infrequent but potentially severe complication.

These considerations prompted us to review our experience with seven cases of susceptible Gram-positive bone and joint infections (five methicillin-susceptible Staphylococcus aureus, one Streptococcus sp. and one coagulase-negative staphylococcus) treated with combinations of newer quinolones and rifampicin. There were four patients with infected orthopaedic implants (two knee prosthesis and two tibial plate infections) and three with osteomyelitis (one chronic hip osteomyelitis, one ankle arthritis with distal tibial and talus osteomyelitis and one vertebral osteomyelitis with paravertebral abscess). All patients started therapy with intravenous oxacillin (median duration 15 days, range 5–28 days) and early surgical procedure was carried out in five cases including resection of indwelling material in all cases. The median duration of antibiotic therapy was 7 months (range 3–9 months) including oral moxifloxacin in five cases and levofloxacin in two cases. Success occurred in six of seven patients with a post-treatment follow-up of 19 months (range 9–34 months). Treatment failure occurred in only one patient with a knee prosthesis infected by coagulase-negative staphylococcus and was related to the isolation of a resistant strain emerging during therapy.

Although our data are limited by small numbers, the results are encouraging and should be confirmed in further large clinical trials.

In conclusion, we now recommend the combination of rifampicin and moxifloxacin for bone and joint infections caused by susceptible strains when a prolonged course of systemic antibiotics is considered. This is particularly true when indwelling devices are present and should be associated with adequate surgical therapy.

References