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Poster Session VI

**Molecular epidemiology of pneumococcal serotypes and beta-haemolytic streptococci
IN VITRO ACTIVITY OF JOSAMYCIN AGAINST STREPTOCOCCUS PYOGENES ISOLATED
FROM UPPER RESPIRATORY TRACT INFECTIONS IN FRANCE**

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Objectives: Macrolides are alternatives to β -lactams for the treatment of pharyngitis due to *S. pyogenes* for patients allergic to these drugs or in whom therapy with these drugs fails. Although erythromycin is the representative of this family of antibiotics, other orally administered macrolides (i.e. azithromycin, clarithromycin or josamycin) are preferred due to favourable pharmacokinetics and tolerance. These antibiotics are effective in short-course therapy. The primary objective of the study was to obtain susceptibility data for josamycin against *Streptococcus pyogenes* isolated from the upper respiratory tract infections in France and to determine the percentage of resistance to josamycin in comparison to other macrolides. A secondary objective was to determine the mechanism of resistance in macrolide-resistant isolates.

Methodology: Susceptibility to penicillin, erythromycin, clindamycin, pristinamycin, tetracyclines, kanamycin (high-level), gentamicin (high-level), cotrimoxazole, rifampicin, vancomycin and fluoroquinolones was tested by agar diffusion (disc method) according to CA-SFM recommendations. MICs of macrolides were determined by broth microdilution according to CLSI and EUCAST recommendations. Detection of mechanisms of resistance to macrolides was performed by PCR.

Results: The modal MIC, MIC₅₀ and MIC₉₀ of josamycin for *S. pyogenes* were 0.12, 0.12 and 0.25 mg/L, respectively. Around 95% of isolates had MIC \leq 0.25 mg/L. Interestingly, since josamycin is not affected by certain mechanisms of resistance to macrolides, the frequency of resistance to josamycin (4.7%) was lower than that to azithromycin and clarithromycin (7.3% and 6.7%, respectively). Resistance was mostly due to ribosomal methylation encoded by the *erm(B)* gene. Strains harbouring the inducible *ermTR* gene and the efflux gene *mef(A)* remained susceptible to josamycin.

Conclusion: Josamycin is active against >95% of *S. pyogenes* isolated from upper respiratory tract infections in five medical centres and present lower frequencies of resistance than other macrolides. Therefore, josamycin is an interesting alternative to β -lactams for the treatment of pharyngitis.