A rare case of pneumococcal meningitis with no response to the ceftriaxone therapy, despite in-vitro susceptibility

Clinical Report:
A 60 years old man presented with fever, seizures and loss of consciousness and meningitis confirmed after lumbar puncture and analysis of CSF. The empirical antimicrobial therapy (consisted of ceftriaxone, vancomycin and ampicilline) in association with dexamethasone was begun after taking blood samples for microbial culture. In view of no significant improvement in clinical condition of patient, the second lumbar puncture had been performed 48 hours later and revealed no remarkable change in CSF parameters. 3 days after admission and following isolation of Streptococcus pneumonia from blood and its sensitivity to ceftriaxone (MIC = 0.016 µg/dLit), other antibiotics discontinued. Despite adequate antimicrobial therapy, fever persisted and clinical situation of patient continued worsening; and he experienced respiratory failure which required endotracheal intubation and mechanical ventilation on 5th day. Patient clinical state and signs of ongoing infection implied the possibility of a resistant pneumococcus; then rifampin added to the antimicrobial regimen (on 10th day after admission), which resulted in significant clinical improvement.

Review of published articles revealed no report of clinical resistance in organisms which were susceptible to the same antimicrobial agent in-vitro. Even in organisms with intermediate resistance to the β-lactam antibiotic, response to the treatment is not different from that of infections due to susceptible isolates. Although in situations which response to antibiotic therapy is not acceptable, tolerance to the administered antibiotic is another explanation, but there is a little evidence about ceftriaxone-tolerant strains of Streptococcus pneumoniae in literature. Though, alarming emergence of such isolates, with in-vivo resistance/tolerance should be tracked precisely; which might lead to shift in the empirical antibiotic therapy of pneumococcal infections.

Streptococcus pneumoniae, ceftriaxone, MIC, in-vitro susceptibility, resistance

Presentation: Poster