Initial Description of the L22 Mutation Responsible for Quinupristin/Dalfopristin Resistance in Streptococcus pneumoniae: Case Reports from the SENTRY Antimicrobial Surveillance Program

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MATERIALS AND METHODS

During the respiratory tract disease seasons of 1997-2001, a total of 8,837 community-acquired isolates of S. pneumoniae were monitored for emerging resistance patterns to 30-antibiotic agents. In 2001, isolates forward to the SENTRY Program monitor (JMI Laboratories, North Liberty, Iowa) were also being screened for quinupristin/dalfopristin (Synercid®) resistance using reference both molecular methods of the National Committee for Clinical Laboratory Standards, and those with undue susceptible MIC results were further tested for molecular mechanisms of resistance. The initial molecular methods utilized a rapid and rapid polymerase chain reaction (PCR) method described earlier by Farrell et al. Among 332 S. pneumoniae resistant from Europe (130 strains from 18 countries, Canada: 31 strains from five centers), Latin America (23 strains from six countries), and the United States (158 strains from 22 centers), nine strains were noted to possess macrolide resistance, but were negative by PCR screens for erm and mef. One of these organisms was also resistant to 39/14 MIC indicating reduced susceptibility.

RESULTS

For gene sequencing the L22 ribosomal protein, a 176 bp segment was amplified by PCR. The PCR primers used were: DF-L22-F GAACTCAGCTGTAGCTAACGC

• Since the use of macrolides has been implicated in the increased resistance to MLSß agents and penicillin, continued surveillance requires to select the wider selection of Synercid®-resistant strains where these agents have been applied clinically.

• The tandem duplications of ribosomal target proteins found in this study and elsewhere may be more wide-spread and needs further investigation in other Gram-positive species such as Enterococcus faecalis, coagulate negative staphylococci and an intrinsic resistance trait among E. faecalis strains.

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SELECTED REFERENCES


