A pragmatic approach to identify extended-spectrum β-lactamase-producing klebsiella pneumoniae in Taiwan: in vitro activity of newer and established antimicrobial agents.

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摘要

Abstract

The activities of 17 antimicrobials were evaluated against 211 clinical extended-spectrum β-lactamase (ESBL)-producing Klebsiella pneumoniae isolates from Taiwan. A pragmatic approach by sequential Etest (AB BIODISK, Solna, Sweden) ESBL screen (narrow MIC range) and/or the usual Etest method (broad MIC range) was used. Among 131 isolates with a ceftazidime MIC of > 8 μg/ml, 125 (95.4%) had a reduction of ≥3 log2 dilution steps for ceftazidime (positive test). Among 83 isolates with a ceftriaxone MIC of > 8 μg/ml and ceftazidime MIC at ≤8 μg/ml, 81 (97.5%) had a reduction of ≥3 three log2 dilution steps for ceftriaxone. Among the remaining eight isolates with nondeterminable results, additional Etest MIC method results revealed five ESBL-positive and two ESBL-negative (putative AmpC) determinations. This approach offered a cost-effective strategy to screen for ESBL among large number of isolates. The carbapenems (meropenem and imipenem) were the most active compounds (100% susceptibility) followed by newer fluoroquinolones (levofloxacin, gemifloxacin and gatifloxacin) at approximately 80% susceptible. Co-resistance to gentamicin was 96%, tobramycin 96%, and amikacin 62%. In conclusion, ESBL-producing strains of K. pneumoniae, also resistant to cefepime and aminoglycosides, are now widespread in Taiwan. The carbapenems and newer fluoroquinolones remain quite active against these ESBL strains recognized by this novel diagnostic approach.