CONCLUSIONS

- Worldwide linezolid resistance remains unusual (0.3%) and focuses among staphylococci (0.1% of S. aureus and two species of enterococci (Table 2)).

- Linezolid-resistant strains were observed in five countries (Germany, Italy, Japan, Mexico, and China) and 36% were isolated in the USA with clinical outcomes documented in seven studies.

- A wide variety of resistance mechanisms were identified in 2006, including the F117T substitution mutation (MdR-1), the L3 cfr transposon and L4 LEI mutations (Table 2).

- As nontarget integrons are usually germline-associated, the resistance phenotype is usually not transferred to the next generation. "Horizontal linezolid resistance" is not well characterized, neither in laboratory nor in clinical or epidemiological terms.

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REFERENCES

- Acknowledgements
- References
- Supplementary data
- Table 5: Listing of various bacterial and non-bacterial species isolated from linezolid and LEADER programs during 2006

Table 5: Listing of various bacterial and non-bacterial species isolated from linezolid and LEADER programs during 2006

- The total number of Gram-positive cocci submitted to the ZAAPS and LEADER programs was 12,000 during 2006. All tests were performed in accordance with the CLSI and EUCAST standards (Table 1).

- Overall MIC results were 37% in the ZAAPS study and 3% in the LEADER study. Resistance to vancomycin (VRE) did not adversely affect the linezolid activity (data not shown).

- Linezolid activity against CNS was the same for the two programs with the MIC50/90 results at 1 µg/ml. However, linezolid resistance in CNS was not detected in ZAAPS Program and four isolates were detected in LEADER Program. One isolate was a high-level resistant strain and one was a low-level resistant strain (Table 1).

- Overall linezolid resistance results were only 0.4% (ZAAPS) and 0.4% (LEADER).

- The US study was 1.7% in ZAAPS (highest rate in Taiwan, 41.5%) and 29.0% in LEADER (highest rate in Italy, 41.5%). Linezolid resistance was 0.3% (4 strains; ZAAPS) and 1.1% (8 strains; LEADER).

- Among the tested S. pneumoniae, non-susceptible penicillin MICs (MIC ≥ 2 µg/ml) were greatly increased in ZAAPS/LEADER programs with the MIC50/90 results at 1 µg/ml. However, ZAAPS/LEADER strains showed 0.14% (ZAAPS) and 0.34% (LEADER), with nearly all isolates sensitive in the USA.

- The most common linezolid resistance mechanisms were: G2576T mutations (20) and cfr gene (8), see Table 2.

- The overall linezolid resistance rates for each study were: 1.0% (ZAAPS) and 0.5% (LEADER). One isolate was not susceptible to linezolid.

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