

Background and aim.

Ceftobiprole is a recently-developed, latest-generation cephalosporin and has been the first in its class to show activity against methicillin-resistant *Staphylococcus aureus* (MRSA) by inhibiting essential peptidoglycan transpeptidases, including the β -lactam resistance determinant PBP2a (1). Ceftobiprole combines activity against MRSA with broad spectrum activity against other Gram-positive and Gram-negative bacteria.

In this work we compare the MIC values obtained on MRSA strains by either microdilution or Etest

1 Cassette Chromosome mec Types I to V in Methicillin-Resistant *Staphylococcus aureus* 2005 (K.Zhang, Jo-Ann McClure, Sameer Elsayed,
2 Thomas Louie ,John M.Conly) 1Ceftobiprole- and ceftaroline-resistant methicillin-resistant *Staphylococcus aureus*. 2015
Chan Lc, Basuino L, Diep B, Hamilton S, Chatterjee SS, Chambers HF
3. www- Eucast.org
4. Characterization of SCCmec Types and Antibacterial Susceptibility Patterns of *Methicillin-Resistant Staphylococcus aureus* in Southern Iran

Material and Methods

80 MRSA strains isolated from clinical sample of AOUI Verona (Italy) during MDR bacteria screening were included in the study.

Ceftobiprole MICs were determined for all strains by microdilution and Etest, and results interpretation followed the EUCAST recommendations (2).

The *mecA* gene was detected by PCR (3-4).

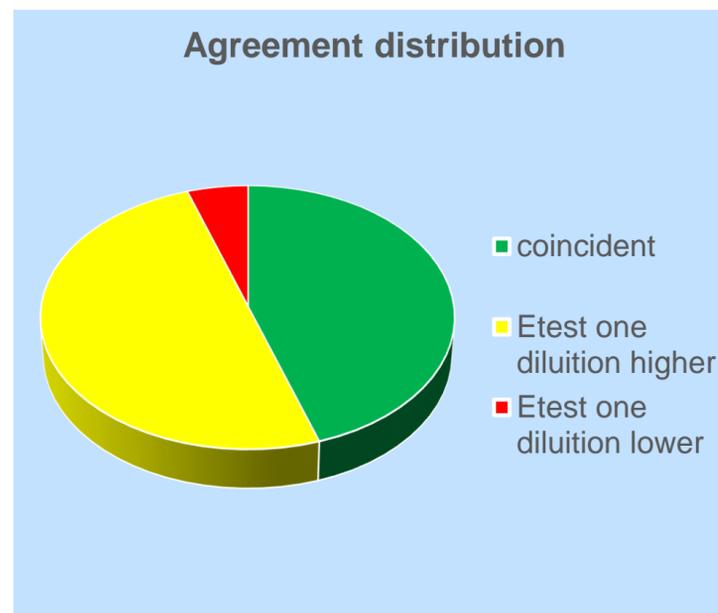


Figure 2: % agreement Etest and microdilution

Results and conclusions

The *mecA* gene was detected in all strains.

For all 80 MRSA strains tested MICs of ceftobiprole were in the susceptible range. According to the EUCAST breakpoint a *S.aureus* can be defined resistant to ceftobiprole with a MIC >2 μ g/ml and susceptible with a MIC \leq 2 μ g/ml.

Figure 1 show the MICs distribution by Etest and microdilution of 80 MRSA strains. The MIC₅₀ value was 0.75 mg/L using Etest and 0.5 mg/L using the microdilution method. The MIC₉₀ value was 1.5 mg/L using Etest and 1 mg/L using the microdilution method.

The agreement between the two method used, using microdilution as gold standard, was 97.5%.

For 35 strains (43,75%) the MICs values were coincident, while for 39 strains (48.75%) the MICs obtained with Etest was one dilution higher than microdilution, Only 4 strains (5%) presented an Etest MIC that was one dilution lower than microdilution. (Figure 2)

Ceftobiprole presents an excellent activity against MRSA strains. The agreement between Etest and microdilution method in determining MIC is very high, namely 97.5%

Etest often show a MIC value one dilution higher than the gold standard microdilution.

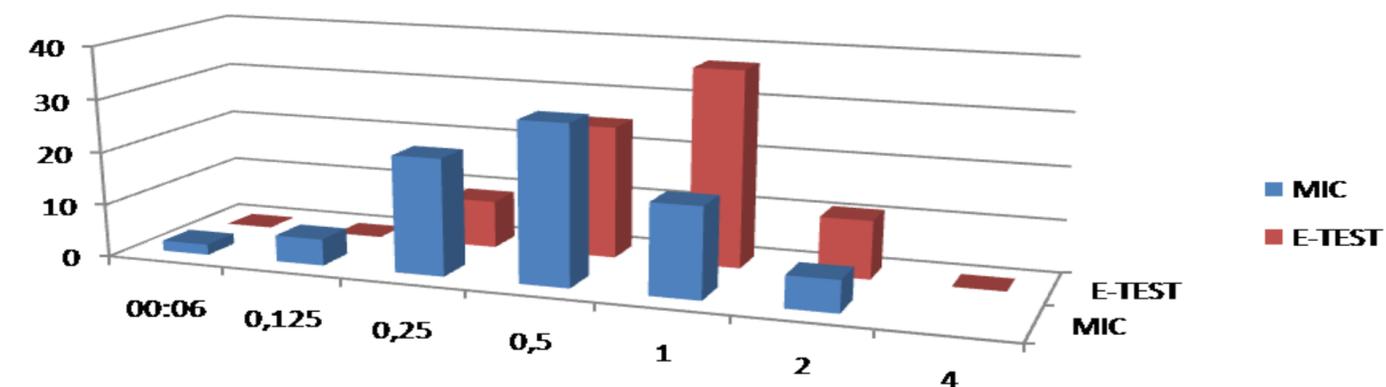


Figure 1: Ceftobiprole MICs distribution by Etest and Microdilution