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ePoster Viewing
Resistance surveillance & epidemiology: Gram-negatives

Effects of CLSI and EUCAST clinical breakpoints on antibiotic susceptibility test reporting of CTX-M-15 ESBL and KPC-3 carbapenemase Klebsiella pneumoniae isolates

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Background: The use of clinical breakpoints for antimicrobial susceptibility testing is important both for consistent clinical reporting of antimicrobial susceptibility and for international surveillance of the antimicrobial susceptibility of microorganisms. However, in the era of multiresistance, it is important to analised the impact of different interpretative criteria when ESBL and carbapenemase-producing strains are envolved. The aim of this study was to analyse the effects of Clinical and Laboratory Standards Institute (CLSI) and European Committee on Antimicrobial Susceptibility Testing (EUCAST) clinical breakpoints on antibiotic susceptibility reports in CTX-M-15 ESBL and KPC-3 *Klebsiella pneumoniae* producers.

Material/methods: 73 *K. pneumoniae* clinical isolates CTX-M-15 (n=46) and KPC-3 (n=27) producers were studied. Antimicrobial susceptibility was assessed using disk diffusion method for amoxicillin/clavulanic acid, cefoxitin, cefotaxime, ceftazidime, imipenem, ciprofloxacin and gentamicin. The results were interpreted applying *Enterobacteriaceae* CLSI and EUCAST 2014 criteria. For KPC-3 isolates the results for imipenem were also interpreted according to 2010 breakpoints in order to evaluate the impact of 2010-14 breakpoints evolution.

Results: The main difference between EUCAST and CLSI was the elimination of the intermediate category for amoxicillin/clavulanic acid, more significative in CTX-M-15 producers (56.5% CLSI *Vs* 0.0% EUCAST) compared with KPC-3 producers (7.4% CLSI Vs 0.0% EUCAST). In CTX-M-15 clinical isolates resistance rates to cefoxitine increased from 4.3% to 13.0% and no changes were noted in imipenem, ciprofloxacin, gentamicin, ceftazidime and cefotaxime. Surprisingly, for KPC-3 producers the resistance rate to imipenem has decreased (92.6% CLSI *Vs* 74.1% EUCAST) and only intermediate category has increased (0.0% CLSI *Vs* 18.5% EUCAST). The resistance rate for ciprofloxacin and gentamicin has increased (37.0% to 40.7% and 63.0% to 81.5%, respectively). When compared 2010 and 2014 evolution the results showed an increase of 17 imipenem resistant isolates (63.0%) to 25 isolates (92.6%) according to CLSI breakpoints. Considering the EUCAST

criteria, the imipenem resistant isolates increased from 18 isolates (66.7%) in 2010 to 20 isolates (74.1%) in 2014.

Conclusions: When compared with CLSI, the EUCAST breakpoints will lead to less 18.6% of KPC-3 *K. pneumoniae* clinical isolates being reported resistant to imipenem. Also a small (<10%) increase of resistant rates was found considering the 2010 and 2014 EUCAST breakpoints evolution for imipenem when compared with CLSI (30%). By other hand, the isolates are being reported resistant to ciprofloxacin and gentamicin while no significative difference were found for imipenem, ciprofloxacin and gentamicin antibiotics regarding CTX-M-15 producers. In conclusion, resistance surveillance is critical especially in *Klebsiella pneumoniae* KPC-3 producers considering that antimicrobial susceptibility results can lead to an increased carbapenem prescription by clinicians and important selection pressure.