Detection of extended-spectrum beta-lactamases

Dear Editor,

We read with interest the paper on detection of extended-spectrum beta-lactamase (ESBL) producing bacteria from patients with urinary tract infections published in the recent issue of IJMM.[1] We have three comments:

- The authors have used only ceftazidime/ceftazidime + clavulanic acid disks for screening. As per the CLSI guidelines, both ceftazidime and cefotaxime disks, alone and in combination with clavulanic acid must be used to detect ESBL production.[2] This is because of substrate variability; some ESBLs (e.g.TEM-5) are ceftazidimases and some others (e.g.TEM-3) are cefotaximases.[3] In a previous study, we had screened 1000 clinical isolates each of *Escherichia coli* and *Klebsiella pneumoniae* using both disks.[4] On further analysis of our study, we found that we would have missed 9.6% of ESBL producers if we had used only ceftazidime/ceftazidime + clavulanic acid disks. Thus, we recommend that all researchers should use both the combination disks as per CLSI recommendations
- The authors have shown that the results of *E*-test correlate well with the results obtained by polymerase chain reaction (PCR). They recommend the *E*-test for confirmation of those detected as ESBL producers by the Double Disk Synergy Test (DDST). We would like to, however, add that *E*-test may not be an ideal confirmatory test for ESBL producers. There are reports that question the utility of *E*-test for detecting ESBLs as the concentration gradient in E-strip is not as extensive as recommended by CLSI and the test has been shown to yield many indeterminate results[5,6]
- The authors have assessed the validity of DDST by detecting three beta-lactamase genes: *bla*CTX-M, *bla*TEM, and *bla*SHV by PCR and consider their presence in bacteria as the genetic basis for ESBL production. While all CTX-M genes code for ESBL, only 42% of TEM types and 25% of SHV types are currently known to code for ESBL phenotype.[7] Thus, genetic validity for ESBL production cannot be inferred by mere detection of *bla*TEM or *bla*SHV genes. One needs to sequence further the entire length of the genes and confirm whether they are ESBL producing types or not.[8]

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Conflicts of interest.

There are no conflicts of interest.

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