**Abstract:** Introduction and Objective: Temocillin is a β-lactamase resistant penicillin. It is a semi-synthetic 6-alpha-methoxy derivative of ticarcillin. This modification increases stability to β-lactamases, including Amp C and extended-spectrum beta lactamases. Reviving older compounds like temocillin that have fallen into disuse may help to alleviate multidrug resistance issue. We have conducted this study to fine out the efficacy of temocillin against ESBL and Amp C beta lactamase producing Enterobacteriaceae isolated from a tertiary care hospital of Pakistan.

Materials and Method: The study was carried out at the Department of Microbiology, Army Medical College/National University of Sciences and Technology, looking after an 1100 bedded tertiary care hospital. Routine clinical specimens were received from various wards. Organisms were identified by using standard microbiological procedures (Gram’s stain appearance, colonial morphology, catalase test, cytochrome oxidase reaction, motility, API 20E) . ESBL producing isolates were identified by Modified double disk test (DDT) with cefepime, cefotaxime and amoxicillin+clavulanic acid disks. Amp C beta lactamases were identified by using cefoxitin disc. Screen positive organisms were subjected to three dimensional extract test for detection of Amp C beta lactamases. Minimum inhibitory concentration was performed by using E-strips (AB-Biodisk) of temocillin for each isolate. Results were interpreted by using SPSS version 17.0.

Results: A total of 40 ESBL and 28 Amp C beta lactamase producing Enterobacteriaceae were analyzed. 94% of ESBL and 96 % of Amp C beta lactamase producing bacteria were susceptible to temocillin.

Conclusion: Temocillin showed excellent activity against ESBLs and Amp C beta lactamase producing bacteria. It can be recommended as an effective treatment option against these resistant bacteria.

**Presentation:** Poster