The study was conducted on 300 patients with ExPEC infection admitted to an academic medical center in south India, with the objective of clinic-microbiological correlation with special reference to phenotypic and genotypic characters of extraintestinal pathogenic E.coli and the outcome.

The clinical details like evidence of haemolysis, systemic inflammatory response syndrome and organ failure, symptoms of pneumonia, ARDS, presence of diabetes, patient’s immune status, symptoms of UTI were collected in a student’s proforma. Details of antibiotics used and clinical outcome were collected and follow up were done for the period of one year. APACHE II scores were calculated for all patients based on the available data to quantify clinical virulence and severity of the infection.

E.coli isolates were identified based on colony morphology on MacConkey’s agar, Gram staining and by standard biochemical tests. Blood isolates were identified using automated biochemical system Vitek 2 (bioMerieux).

Phenotypic characterization was done as follows: Production of haemolysin was detected and biofilm production was assayed in microtitre plates. Antimicrobial agents were tested by Kirby-Bauer disk diffusion methods in accordance with CLSI guidelines. Isolates were tested for ESBL via the combination disk methods. Production of AmpC was measured by cefoxitin disk test. Carbapenemase production was confirmed by modified Hodge test. Identification of MBL activity was performed by carbapenem-EDTA combined disk method.

Genotypic characterization was done as follows: Phylogenetic grouping (A,B1,B2,D) of the E.coli isolates was determined based on chuA and yjaA and DNA fragment TSPE4.C2 genes. Detection of virulence factors (papC, cnf1, neuC, hlyA, fimH, iutA, stx1 and stx2) genes were detected by three sets of multiplex PCR assay.

Drug resistance genes like TEM, SHV, CTXM, CTXM15, MOX, CIT, DHA, ACC, EBCM, FOX and NDM-1 were detected by PCR. Out of 300 ExPEC isolates, 159(53%) were from cases of UTI, 77(25.6%) from bacteremia, 40(13.3%) from wound infection, 19(6.3%) from pneumonia, 3(1%) from intravascular device infection and 2(0.6%) were isolated from cases of meningitis.