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UG -4 : VIRULENCE FACTORS OF UROPATHOGENIC E. COLI IN PATIENTS PRESENTING TO A TERTIARY CARE HOSPITAL

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Introduction: *Escherichia coli* are organisms with the ability to colonise and persist in numerous niches. They are usually commensals, but can also take on a more pathogenic nature, causing infections of the blood stream, intestinal tract and the urinary tract among others. Uropathogenic *E. coli* (UPEC) are the primary cause of about 70 – 95% of community acquired urinary tract infections and recurrence is usually a major problem in many individuals. There are several virulence factors associated with UPEC like Iron acquisition systems, fimbriae, secreted toxins like α – hemolysin, biofilm formation etc. Virulence factors among various types of UPEC have been poorly studied. This study aims at comparing the presence of some common virulence factors among UPEC isolated from patients with urinary tract infection (UTI).

Materials and methods: This study was done between June – July 2017 on patients presenting with symptoms of UTI. Clean catch mid-stream urine samples were collected from these patients and 91 cases who had

E. coli grown from the urine were included in the study. Urine samples were examined microscopically for presence of pus cells, RBC's and other structures. It was cultured using the semi quantitative method on CLED and MacConkey agar. After overnight incubation growth on the plates were quantified and *E.coli* identified using biochemical tests. Antibiotic susceptibility testing was done for these isolates. The organisms were further analyzed for some virulence factors like Hemolysin production, Biofilm formation, and gene coding for Type 1 pilus (*FimH*). A correlation between the presence of these virulence factors and clinical picture was done.

Results: The prevalence of UPEC during the study period was 25%. Sixty two cases were inpatients and 29 were out patients with maximum number of cases in the 61 – 70 age group. Mucoid organisms accounted to 9.8% of the total and 32.9% were hemolytic. Strong biofilm production was seen in 6.5% of the strains. Multi – drug resistance was seen in 38.4% of the

strains and 35% were ESBL producers. *Fim H* gene was detected in 8 out of the 20 strains tested for the presence of the gene.

Conclusion: This study found the presence of all the virulence factors detected. Hence it would be worthwhile to look at other markers of virulence especially the genetic markers, as the presence of these

could predict the outcome of the infection particularly in patients who are debilitated. MDR strains were encountered in the study and Pan resistant strains were also found. Hence studies on the phenotypic and genotypic characters with susceptibility pattern of these organisms will go a long way in understanding the outcome of these infections.