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Comparative gene expression of urine and fecal *E. coli* isolated from women with acute cystitis

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Temporal and spatial regulation of gene expression induced by bladder environment may be accountable for difference in the pathogenicity of urinary and fecal *E. coli* isolates. In order to better understand the pathogenesis of urinary tract infection (UTI), genetic and functional (expression) profiles of cystitis and fecal *E. coli* isolates were analyzed in the present study. Fifty sets of concurrent urinary and dominant fecal *E. coli* from women with acute cystitis were correlated by analyzing their mRNA and phenotypic expression for five virulence genes (VGs) viz. *fimH*, *papG* alleles, *hlyA*, *iutA* and *traT* along with phylogenetic grouping. Predominance of phylogenetic group B2 (48% and 40%, respectively) and higher prevalence of VGs *fimH* (82% and 78%), followed by *traT* (66% and 46%), and *iutA* (44% and 40%) was observed in both urinary and fecal *E. coli* isolates, respectively; with *traT* being the only gene significantly associated with urinary isolates ($p=0.04$). Number of urinary *E. coli* expressing mRNA and corresponding phenotype of the respective gene tested was more in urinary isolates as compared to fecal isolates; though this difference was statistically significant only for *traT* ($p=0.02$). Differences between genetic and expression profiles of concurrent dominant fecal and cystitis *E. coli* were not prominent; indicating establishment of symptomatic infection might be more dependent on the host factors rather than on the virulence potential of uropathogens alone.

Biography

Jyotsna Agarwal has joined the King George's Medical University, Lucknow as a Faculty in 2002 and is currently working as a Professor of Microbiology and the In-charge of Bacteriology Laboratory. She received her MBBS degree from CMC, Vellore and MD in Microbiology from BHU, Varanasi. She is Nodal Officer In-charge for Regional Centre of WHO sponsored Diphtheria Surveillance Project and Regional RTI/STI Centre for the state of Uttar Pradesh. Her research interests include antimicrobial resistance, molecular diagnostics; focus areas are infections of children including pneumonia, septicemia and meningitis; and sexually transmitted/reproductive tract infection along with pathogenesis of urinary tract infections in women. She has nearly 50 publications in reputed journals and a book chapter to her credit.

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