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A short-term study on statistical numeration of multidrug resistant *Escherichia coli* isolates among the patients with urinary tract infection

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Along with malaria and plague, urinary tract infections (UTIs) are among the oldest types of illnesses till today. Antibiotics, however, have consistently been the initial treatment option chosen by medical specialists despite the fact that treating this complex condition has never been simple. Antibiotic abuse or overuse is linked to the development of resistance, the recurrence of illness, suffering, and financial hardship. In this study, we examed the pattern of *Escherichia coli* antibiotic susceptibility in urine samples from UTI patients in a local population in India as well as the formation of multiple drug resistances (MDR) among the isolates. The level of resistance to multiple antibiotics is accessed by multiple antibiotic resistance index (MARI), a quantitative measure, which is determined by simply dividing number of antibiotics to which the isolate is resistant to total number of antibiotics tested. We found that second and third generations of flouroquinone were shown the highest levels of resistance, followed by widely used antibiotics like ampicillin and cephalosporin. The drugs fosfomycin (FO) and nitrofurantoin (NIT) had the highest levels of sensitivity. In addition, we observed 80% of isolates with multiple antibiotic resistance indexes more than 0.2 and 97% of isolates that are multidrug resistant, which amply illustrates the severity of rising antibiotic resistance that must be properly controlled to treat UTI effectively.

Keywords: Antibiotic resistance, Multiple antibiotic resistance index (MARI)