



RESEARCH ARTICLE

ANTIBIOTIC SUSCEPTIBILITY OF *E. COLI* ISOLATED FROM SEWAGE WATER TREATMENT PLANTS

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ABSTRACT

Antibiotics susceptibility *E.coli* Bacteria was a non pathogenic bacteria, it was created cystitis which was occur in urethra and bladder. In this procedure normal growing bacteria were deposited in urethra and bladder, Catheter main cause of cystitis. It was caused by *E.coli*. *E.coli* was deposited in urethra. In hygienic condition it was infected by *E.coli*. Antibiotics susceptibility were check in *E.coli* these antibiotics has been susceptible in gram negative bacteria.

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INTRODUCTION

Antibiotics Susceptibility were check in different antibiotics from gram negative bacteria. *E.coli* was sensitive to antibiotics but some times it was resistance to antibiotics ie amoxicillin, ofloxacin, gentamycin, ciprofloxacin, tetracycline, ampicillin. These antibiotics were help to remove cystitis which was created by *E.coli*. Cystitis formation was complicated in *E.coli* theses cystitis was cause of urine tract infection in female. Oral therapy chosen effective against aerobic *E.coli* form. Antibiotic bacteria were an important and beneficial treatment for the cystitism. Many findings suggest that inadequate selection and abuse of antimicrobials may lead to resistance in various bacteria and make the treatment of bacterial infections more difficult (Kolar M 2001). *Escherichia coli* is the most prevalent facultative anaerobic species in the gastrointestinal tract of human and animals, usually a harmless microbe, but it is also a medically important bacteria causing a number of significant illnesses (Friedman2002)As commensally bacteria constitute a reservoir of resistance genes for (potentially) pathogenic bacteria, their level of resistance is considered to be a good indicator for selection pressure by antibiotic use and for resistance problems to be expected in pathogens(Murray1992). Despite the fact that *Escherichia coli* as a commensal bacteria can be found in intestinal microflora of a variety of animals including man, not all the strains are harmless, and some can cause debilitating and sometimes fatal diseases in humans as

well as mammals and birds (Belanger 2011). Severe neurological lesions resulting from infection with meningitis-associated *E. coli* (MNEC) leads to death in 20-40% of infected infants (Bonacorsi 2011). *Escherichia coli* was most abundant facultative anaerobic bacterium was present in the normal intestine. Its presence was clearly associated with infection of the gastrointestinal tract, urogenital tract, and peritoneum and occasionally with infection at distant loci after bacteremia. *Escherichia coli* is the most prevalent facultative anaerobic species in the gastrointestinal tract of human and animals, usually a harmless microbe, but it is also a medically important bacteria causing a number of significant illnesses. It has been shown that EIEC strains and *Shigella* species are biochemical, genetically, and pathogenetically very closely related so much so that it has been proposed that they should be classified as one species in genus *Escherichia* (Benner DJ 1972, Lan 2004). Materials and methods Clean-catch urine samples obtained from patients were inoculated onto 5% blood agar and Eosin-Methylene Blue (EMB) agar with 0.01 mL calibrated loops by a semi-quantitative technique in each centre. Pyuria was detected either with positive dip-stick test or $\geq 5-10$ leucocytes in the urine centrifuged at 2000 rpm for 5 min. Culture plates were incubated for 18-24 h at 37°C. The isolated bacteria were identified by conventional methods in each laboratory. Identification procedures were repeated in the central laboratory to minimize the variations between the laboratories. Standard biochemical reactions were performed at the first step was used when needed. All isolates were stored at -70°C. Bacteria were classified according to whether they were isolated from uncomplicated or complicated Urine Tract

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Infection. Antimicrobial susceptibility testing was performed by a disc diffusion method using two panels of antibiotics; one tested against strains from uncomplicated Urine Tract Infection, the other tested against strains from complicated Urine Tract Infection. The antibiotics tested against both groups were ampicillin, amoxicillin/clavulanate, cefazolin, cefuroxime, ceftriaxone, cefixime, aztreonam, gentamicin, ciprofloxacin, ofloxacin, nalidixic acid, trimethoprim/sulfamethoxazole and sulfisoxazole. Three antibiotics tested only against strains from uncomplicated Urine Tract Infection were cefadroxil, nitrofurantoin and fosfomycin. Seven antibiotics tested only against complicated UTI strains were piperacillin, piperacillin/tazobactam, tetracarcillin/clavulanate, cefepime, cefoperazone, ceftazidime and amikacin. This study was conducted in Urine tract infection, the patient who comes with Urine Tract infection symptoms to hospital. In this study 20 person sample were taken, in this study only morning urine sample was taken aseptically for culture in the himedia container, temperature was maintained 4°C.in between processing of culture, temperature should be maintained. 100 µl of sample was inoculated in MacConkey agar media.these plates was incubated in 37 C. Primary bacterial identification was completed observing after overnight at 37 °C .Hamilton agar media Six types of antibiotics discs from himedia, Mueller Hinton agar media were using for the culture collection .cotrioxazole, Amoxyclav, Gentamicin, Tetracycline, Cefuroxim, Co-Trimoxazole.

Morphological Characteristic of *E.coli* colonies grown on MacConkey agar and EMB agar plates has seen as round shaped smooth colonies, Moderate in size, its characteristic colony color as red or pink was seen in MacConkey agar plates *E. coli* colonies grown on Mac Conkey agar and EMB agar plates were observed as round shaped smooth colonies, moderate in size. The characteristic colony color as red or pink was observed on MacConkey agar plates, and metallic green seen on EMB agar plates. Antimicrobial susceptibility test. Were conducted in six antibiotic samples. Ciprofloxacin, ofloxacin, The parameters chosen to characterize our cells physiologically were the mass per milliliter (proportional to the OD₆₀₀, measured pico drop), the number of cells per milliliter (measured in a Coulter counter), and the average cell mass (calculated, in arbitrary units, as the ratio of OD₆₀₀ to the number of cells per milliliter). Average cell mass is known to vary strongly with the growth medium, being greater in media that support rapid growth.

RESULTS

The rapid identification of *E.coli* and processing of Enterobacteriaceae species were first examined for lactose fermentation direct examination on MacConkey agar and production of beta –glucuronidase (colony observation under 600 nm light)over night culture of *E.coli* in Luria burtain agar in 37 °C in incubator.

DISCUSSION

The present study has been completed in initial investigation on the susceptibility of *E.coli*. *E. coli* has major antimicrobial susceptibility of ampicillin and trimethoprim-sulfamethoxazole, while more susceptible for gentamicin. *E.coli* and other bacteria were higher in women. Antibiotics are a group of effective and commonly used drugs.

Unfortunately, bacteria have changes genetic variability. Urinary tract infection was most common bacterial infections, and most common reasons for prescribing antimicrobial drugs. *E.coli* has been shown that *E.coli* strains can be identifies within 1 h in the clinical laboratory from primary plating. Media by using results from Mac conkey agar media lactose fermentation beta –glucosidase Antibiotic resistance in *E. coli* is of particular concern because it is the most common Gram-negative pathogen in humans, the most common cause of urinary tract infections, common cause of both community and hospital-acquired bacteraemia (salvadori2004). As well as a cause of diarrhea (Kaper2004) it is also well documented that widespread use of antibiotics in agriculture and medicine was accepted as a major selective force in the high incidence of antibiotic susceptibility among gram-negative bacteria (Mc Keon1995).The causative agents persisted more frequently in the periurethral area than in the urine on both the third and seventeenth days in patients treated with either ampicillin or trimethoprim/sulfamethoxazole. The recurrence rates by the seventeenth day were 50% (4/8) in the ampicillin group, and 14% (2/14) in the trimethoprim/sulfamethoxazole group. Although suggestive in favor of the latter treatment, the difference is not statistically significant. In two of the three re-infections in the ampicillin group the microorganisms causing the second attack were present in the periurethral area on the third day.

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