



RESEARCH ARTICLE

URINARY TRACT INFECTION AMONG DIALYSIS PATIENTS IN THE CITY OF BAQUBA

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ABSTRACT

**Background:** Approximately 10% of humans at risk of UTI at some time during their lives. It must be noted, UTIs are also the most common hospital-acquired infection, accounting for as many as 35% of nosocomial infection.

**Subject and Methods:** The study was conducted in the Department of Biology, College of Education for Pure sciences, University of Diyala. The study included 50 patients from dialysis patients who are in Ibn-Sina Dialysis Center in Baquba Teaching Hospital, during the period from November/2015 to April/2016.

**Results:** The results showed that dialysis patients have urinary tract infection with different bacterial infections. As well the result showed that the infection rate for female was 100% and male 93.75%. The study revealed that 22% of patients were at the age group 31-50 years, 4.8% at the age group 10-30 years and 19.2% at the age group 51-70 years. As well the result showed the patients who live in rural areas are more infection (62%), while those who live in the urban was 33%.

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INTRODUCTION

Dialysis is the process for removing waste products and excess fluids from the body. There are two types of dialysis: hemodialysis and peritoneal dialysis. In hemodialysis (HD), blood is removed from the body and pumped by a machine outside the body into a dialyzer (artificial kidney). Doctors decide to carry out a person's dialysis when the person's kidney failure and causing certain conditions such as uremic encephalopathy, pericarditis, acidosis, heart failure, pulmonary edema and hyperkalemia (Mark *et al.*, 2003). Urinary catheterization increases the risk for bacteria infection at a ratio between 3 and 6 % per day and prophylactic antibiotics are not day effective in decreasing symptomatic infections (Yacoub and Akl, 2011). During tract infection (UTI) is a bacterial infection that affects part of the urinary tract. When it affects the lower urinary tract, it is known as a simple cystitis (bladder infection) and when it affects upper urinary tract it is known as pyelonephritis (a kidney infection). UTIs are among the most common bacterial infections, that lead patients to seek medical care (Alebiosu *et al.*, 2010; Anding *et al.*, 2011). Approximately 10% of humans at risk of UTI at some time during their lives. It must be noted, UTIs are also the most common hospital-acquired infection, accounting for as many as 35% of nosocomial infection. The most related risk factors of UTI are age and sex. During the first years of life, UTIs are

less than 2% in males and females. The incidence of UTIs among the males remains relatively low after 1 year of age until approximately 60 years of age when the enlargement of the prostate interferes with emptying of the bladder. There for, UTI is predominantly disease of females (Kolawale *et al.*, 2009). The urethra has resident microflora that colonize its epithelium in the distal portion. Potential pathogens are Gram negative aerobic bacilli (primarily Enterobacteriaceae) and occasional Yeast, are also present as transient colonizers (Jha and Bapat, 2005). *Escherichia coli* are the cause of 80-85% of urinary tract infection, while *Staphylococcus* sp the cause in 5-10 % of unit. There is rare infection with viral or fungal infection. Other bacterial causes include *Klebsiella*, *Proteus*, *Pseudomonas* and *Enterobacter*. These are uncommon and typically related to abnormalities of the urinary catheterization (Yacoub and Akl., 2011). *Pseudomonasaeruginosa* is isolated from chronic UTI especially with catheterization (Orenstein & Wong, 1999).

Subject and Methods

The study was conducted in the Department of Biology, College of Education for Pure Sciences, University of Diyala. The study included 50 patients from dialysis patients who are in Ibn-Sina Dialysis Center in Baquba Teaching Hospital, during the period from November/2015 to April/2016. Divided into 32 males (64%), 18 females (36%), between the ages ranged 10-70 years (13.68 ± 47.82). Information relating to the patient's sex, age and residence was taken by questionnaire.

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Urine samples collected from patients under the supervision of medical specialist. Urine samples were cultured on the Nutrient broth, MacConky agar, Blood agar and Manitol salt agar. Then identified by colony morphology, microscopic examination and relevant biochemical test (Collee *et al.*, 1996).

## RESULTS

The results showed that dialysis patients have urinary tract infection with different bacterial infections as: *Pseudomonas aeruginosa* (76%), *Escherichia coli* (52%), *Staphylococcus sp.* (32%), *Klebsilla sp.* & *Proteus* (18%), *Staphylococcus aureus* (14%). As well the result showed that the infection rate for female was 100% and male 93.75%. The study revealed that 22% of patients were at the age group 31-50 years, 4.8% at the age group 10-30 years and 19.2% at the age group 51-70 years. As well the result showed the patients who live in rural areas are more infection (62%), while those who live in the urban was 33%.

## DISCUSSION

The reason of increased infection by *Pseudomonas aeruginosa* (76%), may be due to it is one of microbiology opportunistic and the major cause of the inflammatory associated with urinary catheters and dialysis as it resistant to many antibiotics that used in treat life urinary tract inflammation and disinfectant used in hospitals (Todar, 2004; Vianelli *et al.*, 2006). Virulence of *Pseudomonas aeruginosa* is multifactorial and has been attributed to cell associated factors like alginate, lipopolysaccharide (LPS), flagellum, pilus and non-pilus adhesins as well as with exoenzymes or secretory virulence factors like protease, elastase, phospholipase (Matheson *et al.*, 2006). The reason for the emergence of species and the other due to several reasons, including water contamination and contain virulence factor may be enzymatic or poisons (Sligh and Timbury, 1994). Increased infection in female than male (100%) due to width and shortness of urethra and nearly to the genital and digestive channels and absence of Prostatic fluid in the female who owns of effectiveness antibacterial of males (Adames *et al.*, 1998). Other study showed that increased infection in male than female (Manhal *et al.*, 2012). The study revealed that 22% of patients were at the age group 31-50 years, 4.8% at the age group 10-30 and 19.2% at the group 51-70 years. As well the result showed the patients who live in rural areas are more infection by 62%, while those who live in the city was of infection by 33%, the reason may be due to increased awareness of health in the cities. There is no supporting information dealing with the age and living variation within this population in the literature.

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