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Research Paper

BACTERIOLOGICAL ASSESSMENT OF URINARY TRACT INFECTION IN OGUME AND ITS ENVIRONMENT

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The bacterial aetiologic agent of urinary traction in Ogume and its environment was determined using freshly voided mild-stream urine samples. A total of 120 urine samples were collected from in and out-patients and subjected to bacteriological analysis, 31samples showed bacteria growth with females having high incidence of urinary tract infection. *Escherichia coli* 41.30% and *Proteus mirabilis* 19.57% were the most prevalent bacteria isolated while the least were *Serratia marscecens* with 2.17%. The antibiotic sensitivity tests of the isolated showed that colistin and gentamicin were more potent than the other drugs for urinary tract infection. Pathogens while ampicillin was the least potent antibacterial agent for urinary tract infection with 8.7% sensitivity.

Keywords: Urinary tract infection, Bacteriological assessment, Ogume

INTRODUCTION

Urinary tract infections (UTIs) are caused by bacteria and are 10 times more common among woman than men. Urinary tract infection is a common disorder that occurs in approximately 25% of young women, and 5% of all women during their lifetime. Urinary Tract Infections are very uncommon in men under the age of 50, UTI are caused by bacteria in the urine (Bacteriuria) and are usually associated with initiative voiding symptoms; such as painful urination (Dysuria), urinary urgency and frequency. For most of this infections, patient need to see a doctor and be treated with Antibiotics.

About 30-40% of UTIs recur within 6 months after initial episode. When Urinary Tract Infection does recur, it is often because the treatments used to suppress bacteria seem to work at first, but do not produce a lasting cure. Urinary Tract infection can also recur when a woman is infected again by different bacteria. Some patients, particularly the elderly, can have asymptomatic Bacteriuria (a term used rather than Urinary Tract infections when no symptoms are present). Urinary Tract infection is presumptive when analysis of the urine (urinalysis) reveals bacteriuria usually accompanied by white and red blood cells. A urine culture quantifying the number and type of bacteria present is required to

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document a Urinary Tract infection. Other conditions that mimic the symptoms of UTIs include those which cause external initiation and Dysuria such as vaginitis or urethritis, but these conditions have a gradual onset, milder symptoms are associated with negative urine cultures, and are commonly accompanied by vaginal discharge. Trauma to the vaginal opening (Introitus) following intercourse or thinning of the vaginal living cells due to aging and estrogen depletion can also contribute to symptoms that mimic Urinary Tract infection. Most Urinary Tract infection in women result in significant morbidity and cost but are not associated with major health issues such as dissemination of bacteria to the blood stream or renal (Kidney) damage.

A urinary tract infection is a bacterial infection that affects any part of the urinary tract. Symptom includes frequent feeling and/or need to urinate, pain during urination, and cloudy urine. The main causal agent is *Escherichia coli* although urine contains a variety of fluids, salts and waste products; it does not usually have bacteria in it. When bacteria get into the bladder or kidney and multiply in the urine, they may cause Urinary Tract infections. The most common types of Urinary Tract infection is acute cystitis often referred to as a bladder infection, infection of the upper urinary tract or kidney is known as pyelonephritis, and is potentially more serious, although they cause discomfort, urinary tract infections can usually be easily treated with a short course of antibiotics with no significant difference between the classes of antibiotics commonly used.

Urinary tract infection is the term used to describe both microbial colonization of the urinary tract and tissue invasion of any organ of the urinary tract by organisms.

Among the microbial colonizers, bacterial are most commonly responsible, although fungi and viruses are occasionally involved (Anderson, 1999).

The urinary tract is essentially a collection and discharging system. The urinary system of a man naturally includes the kidney, urethra, bladder and urethra (Figure 1).

Infections in any of these anatomical sites would constitute Urinary Tract infection; the urinary system may be divided into upper and lower tracts. On this basis, the infections may be categorized into two areas of involvement. This is cystitis or bladder infection and pyelonephirites or kidney infections. (Anderson 1999). Urinary tract infections are a major human problem and it is one of the most common types of infection facing clinicians.

In other words urinary tract infection could be defined as the presence of more than 100,000 organisms per milliliter midstream sample of urine (Stamm and Hooton, 1993). It may be a symptomatic whereby symptoms are not obvious and only found in routine examination.

Urinary tract infections induce symptoms which cause patient to seek medical advice. The infection is dangerous because of their ability to produce serious renal disease (pyelonephitis) and can be a source of spread of infection to the blood stream (Stamm and Hooton 1993).

However, bacteria vira (presence of bacteria in the urine) may be completely asymptomatic or remain localized to the bladder without the development of renal infection. The kidney and urine in the bladder are normally sterile but on the other hand the lower urethra in the female and to less extent in the male has defectable

bacteria flora which includes *Coliform, Diptheroids* and *Staphylococcus* species and the number diminishes towards the bladder. Urinary tract infection is more frequent in sexually active females than males during youth and adulthood due to the proximity of the vagina to the perennial region of the urethra meatus. However, male infants have a higher rate of urinary tract infection than females because they often have congenital genitourinary disorder.

Experimentally, a hundred thousand bacterial counts per milliliter of urine is indicative of urinary tract infection though lesser count may be significant if the patient is voiding large volume of dilute urine or receiving anti-bacterial drugs.

Urinary tract infection may involve various parts of the urinary tract alone or in combination. Those are however distinguished by their clinical symptoms. Pregnant woman with a symptomatic urinary tract infection are at greater risk of developing symptomatic urinary tract infection and obsteritic complication.

Hence this research work is geared towards bacteriological assessment of urinary tract infection in the dwellers of Ogume and its environment.

OBJECTIVE OF STUDY

- To isolate and identify the microorganisms causing urinary tract infection in Ogume and its environment.
- To determine the antibiotic susceptibility patterns of the isolate urinary tract infection.
- To analyze the bacteriological assessment of urinary tract infection in Ogume and its environs.

MATERIALS AND METHODS

Study Site

This study was carried out in about Six rural communities in and around Ogume namely: umuaja, Obinomba, Ebedei, Umukwata, Amai and Ogume all at Ukwani Local Government Area of Delta- State, South-South Nigeria lying between longitude 5^0 20' E, and latitude 6^0 17'N.

The major occupation of the people is farming in addition to other occupation groups such as civil and public servant, traders and artisans.

Water sources for domestic and agricultural uses are streams, rivers, open well and boreholes, however they solely depend on rivers and boreholes.

Because of lack of sanitary infrastructure, their major system of defecation are pit toilets and improper excretion on bush paths which is also due to lack of pipe-borne water systems.

There are two general Hospitals, one in Obiaruku and the other at Umutu.

The limited number of individuals used in this research was based on the voluntary response from individual, ignorance and lack of exposure to research works such as this from the dwellers in and around Ogume and its environs as well as their diabolic beliefs.

Sample Collection

A total of one hundred and twenty samples were collected from volunteered dwellers in and around Ogume and its environment to investigate the bacteriological assessment of urinary tract infection. Tight- fitted, Screwed cap containers were given out volunteered individuals to collect urine samples.

The samples were collected between the hours of 10:00 am and 2.00 pm and then submitted the laboratory for examination.

Processing of Samples

This consisted of adults of which there were 85 female and 35 males.

The specimen (mid stream urine) were collected in sterile universal bottles from patients and labelled with sex, marital status and age of patients. These were then taken to the laboratory for immediate analysis. If immediate delivery of the urine samples collected for diagnosis were not possible, the urine would be refrigerated at 4^0C. If a delay of more than 1 hour was anticipated, boric acid were added to the urine (0.1 g of boric acid to 10 ml of urine).

Media

The media used include blood agar, cysterine lactose – electrolyte deficient (CLED) agar, or MacConkey agar and nutrition agar.

Urine Microscopy

Wet preparation of fresh uncentrifuged urine, 3 loopfuls of well-mixed fresh urine were placed on a slide and covered with a cover slip. The preparation was examined using the 10X and 40X objectives with the condenser iris closed sufficiently to give good contrast.

Gram Smear

About 10 ml of urine was centrifuged and the supernatant fluid discarded. A smear of the sediment was made on a slide, when the smear was dry; it was fixed with method and stained by the gram technique.

Isolation

The method of urine culture used was the streak plate method which utilizes a bacteriological loop of 5mm which delivers a fixed amount of urine (0.001m) to an agar plate i.e. inoculating the surface of media with a known iodine of the urine.

Each time, samples were plated on blood agar to easily detect heamolysis and CLED agar or MacConkey agar to detect lactose fermenters.

Gram Stain

The gram stain techniques as done using crystal violet, lugol's iodine, acetone and neutral red. A smear of the isolate was made in a drop of normal saline on grease-free slide. This was heat-fixed for some seconds. The fixed smear was flooded with crystal violet for 10 seconds.

The slide was then washed with water mordanted iodine, decolorized, using 95% alcohol (or acetone) which was washed off immediately. The smear was counter – stained with neutral red for 30 seconds and rinsed again with water. This was allowed to dry using the hot air oven before observing under the microscope using X100 objectives.

Catalyse

This determines the production of the enzyme catalyst that splits hydrogen peroxide into water and oxygen. An inoculum from the pure culture was emulsified on drops of the H_2O_2 on a clean glass slide. A positive catalase activity was shown by effervescence.

Coagulase Production

This determines the production of the enzyme coagulase by the test isolate. It is a useful test to distinguish pathogenic staphylococcus species from the non pathogenic ones. The slide agglutination method was used. An inoculum of test isolate was collected with a sterile wire loop and emulsified in a loopful normal saline on a grease-free slide. Thereafter, a drop of human

plasma was added and the slide was rocked gently for some seconds. A positive co- agumase was indicated by the clumping of plasma within 5 – 20 seconds.

Urease Test

This test was used to demonstrate the ability of certain organisms to utilize urea as a sole source of carbon and energy. The test organisms was inoculated with the aid of a straight wire loop into an urea agar slants and incubated overnight at 37^0C.

Normal colour of urea is pale but a positive test was indicated by the pink colouration of the medium.

Sugar Fermentation Test

For the sugar fermentation test 1% solution of a battery of sugars (glucose, mannitol, sucrose and lactose were prepared in peptone water and sterilized and dispensed in Bijou bottles and 0.5 ml of 3% methyl red indicator was added. A pure colony of each isolate was inoculated into the sugar-peptone water media and incubated at 37^0C for 24 hours and observed for colour change, which indicates positive sugar fermentation.

Oxidase Test

The test for the presence of cytochrome in bacteria which will catalyse the transportation of electron between electron donors in the bacterium and a redox dye (tetraethyl-P-phenylene diamine dihydrochloride). A little amount of the redox dye was poured on a paper and a colony of the test isolate was smeared on the flooded filter paper using the edge of a clean glass slide. The appearance of a dark purple colouration within 10 second indicated a positive test.

Motility Test

The hanging drop technique was used. The suspected colony was inoculated into peptone water and incubated for 3 hours at 37^0C after which a drop of the peptone water culture was placed inside the well of plasticine gummed on the surface of a cover slip. The slide was then inverted on the cover suspending the organisms. These slides were then observed under the microscope using a X10 objective .Rapid movement of the organisms under the microscope indicated a positive result.

Indole Test

This test was added to demonstrate the ability of certain bacteria to decompose the amino-acid, tryptophan to indole which accumulates in the medium. The test was inoculated in a solution of peptone water and incubated at 37^0C overnight in other to test for the presence of indole, a few drops of indole reagent (para-dimethyl amino benzaldhyde) was added to the culture. A red coloration indicates a positive result.

Citrate Utilization Test

This tests the ability of certain organisms to utilize citrate as their sole source of carbon and ammonium salts as their sole source of nitrogen. Inoculums of the test isolate was inoculated into a sterilized sodium citrate solution and incubated at 37^0C overnight. If the organisms are able to breakdown sodium citrate as its source of carbon, there will be growth and multiplication thereby showing turbidity of the medium which indicates a positive result.

Antibiotic Sensitive Test

Commercially prepared multi disk with known Minimum Inhibitory Concentration (MIC) was used to test the antibiogram of the various organisms

isolated. The Kirby-Bauer method was used for this technique, the entire surface a nutrient agar was inoculated with infecting organisms. Dieses impregnated with known amounts of antibiotics were placed on the agar surface. The plate was incubated at 37^0C for 24 h and the sensitivity patterns were read. In actual use, the diameter of the zone of inhibition rather than the area is used as a major of sensitivity.

RESULTS

A total of 120 patients were examined for urinary tract infection, however the 35 males were examined and 25.7% of the male was infected, while 74.3 was not infected. However a total of 85 female were examined and 36.4% was diagnosed of urinary tract infection and 66.7% was negative. Furthermore, 33.3% of the total population examined was finally diagnosed of urinary tract infection (Table 1).

Table 2 shows the incidence rate of bacterial aetiologic agents of urinary tract infection. The incidence rate of *Escherichia coli* was recorded as 10 with a percentage of 41.30, and *Proteus mirabilis* recorded an incidence rate of 9 with 19.57%. *Klebsilla aeruginosa* incidence rate was 6 with 13.04% and *pseudomonas aeruginosa* was 5 with a percentage of 10.86% however *Staphylococcus aureus* incidence rate of 4 with percentage of 8.70% and *Streptococcus faecalis,* incidence rate was recorded as 2 with 4.35% and finally *Serratia marcencens* with 1 as the incidence rate and 2.17%. The total recorded incidence rate of aetiologic agents of Urinary tract infection was however 46.

Result on the Cultural Characteristics of MacConkey Agar on Test samples ares shown in Table 3. Test A showed profuse growth in A and B; 2 mm and translucent rose pink in colour while

Table 1: Number and Percentage of Infected and Uninfected Cases for Both Sexes

Patients Sex	No. of Examined	No. of Infected	No. of not Infected	Percentage Affected	Percentage not Affected
Male	35	9	26	25.7	74.3
Female	85	31	54	36.4	63.6
Total		120	40	80	33.366.7

Table 2: Incidence Rates of Bacterial Agents of Urinary Tract Infection

No	Organisms	Incidence rate	Percentage (%)
1.	*Escherichia coli*	10	41.30
2.	*Proteus mirabilis*	9	19.57
3.	*Klebsiella aerogenes*	6	13.04
4.	*Pseudomonas aeruginosa*	5	10.86
5.	*Staphylococcus aureus*	4	8.36
6.	*Streptococcus feacalis*	2	4.70
7.	*Serratia marcescens*	1	2.17
Total		46	100

Table 3: Cultural Characteristics of Isolates

Test	A	B	C	D	E	F
Cultural characteristics	MAC (a) +++; 2mm; transluscent rose pink, BA. (b) +++; 2mm; pink	MAC (a) +++; 2mm; haemolytic pink CLED (b) +++; 2mm; greenish yellow	MAC (a) +++; colourless; swamming appearance on colonies; (b) +++ non-haemolytic colourless; swamming appearance on coloures is more (c) +; light greenish with less swamming appearance	MAC (a) +; 2mm golden yellow BA (b) +; 2mm; cream; non haemolytic CLED (c) +; 2ml golden yellow	MAC (a) ++; 2mm; senated colonies with a florescent greenish colour B.A (b) ++; 2mm: hattened colonies and opaque (c) +; 2ml; light blue	MAC (a) ++; 1mm metallic, BA (b) no growth
Microscopy/ alarm stain	• Motel rods Presence of pus cells • A bacilli re	• slightly bigger non-motice rods • presence of pus cells • a caceilli re	• molele rods • a baccicli-re	a + cocci in clusters	• a-motice bacilli	• a - + cocci in chains

Note: Key: MAC, Maccinkey Agar; BA - blood agar; CLED - cystane lactose electron deficient; +++ profuse growth; ++ - about a molred coconist; 10-50 colonies 2mm - size of the colony.

B had Pink in colour. B showing profuse growth measuring 2mm growth measuring 2mm in MacConkey agar with haemolytic pink on Cystane Lactose Electron Deficient in (a) while about a hundred colonies was observed measuring 2mm, which was greenish yellow in color in (b).The Cultural Characteristics of Test C in (a) showed profuse growth which was colourless, swarming appearance on the colonies (c) showed about 10-50 colonies which was light-greenish with less swarming appearance. The Cultural Characteristics of Test D on MacConkey showed about a hundred colonies measuring about 2mm which was golden yellow in blood agar on (a) 3 in (b) 10-50 colonies which measured 2ml and appearing golden yellow was observed in CLED. For Test E MacConkey exhibited about a hundred colonies which measured 1mm in length, and was Metallic in blood agar and test E was about hundred Colony that was identified with measured up to 2mm, that also was serrated colonies with a florescent greenish colour which appeared on Blood Agar in (a). Also about a hundred was recorded for (b) that measured 2mm in length with flattened colonies which was Opaque in Test E (c) about 10-50 colonies was observed which measured about 2ml which appeared to be light blue in colour.

The Microscopy/Gram Stain for Test A was motile rod which has pus Cell and are Gram bacilli negative slightly biggerr non motile rods with the presence of pus Cell appeared to be Gram bacilli negative was seen in Test B. The gram/ Microscopy stain that was observed in Test C was motile rod with Gram bacilli negative. Gram positive Cocci that appeared in both clusters and chains was observed in Test D and F respectively while Gram motile bacilli only was seen in Test E. The possible Organisms that were observed in the cultural characteristics Isolates was *Echerichia coli* in Test A, *Klebsiella aeruginosa* & *progenies*, on test B, *Proteus mirabillis* in test C, *Staphylococcus aureus* in Test D, *Pseudomonas aeruginosa* in E and *Streptococous feacalis* in Test F respectively.

Table 4 shows the Biochemical Characterization of Gram negative Isolates carried out. For oxidase test, *Escherichia coli*, *klebsiella aerogenes*, *Serratia marcescens* and *Proteus*

mirabilis appeared to be Gram negative while *Pseudomonas aeruginosa* was the only gram positive Isolate observed in oxidase test. In Catalase test, All Microbes involved appeared to be Gram positive, while in Urease test, *Escherichia coli*, *klebselila aerogenes* and *Pseudomonas aeruginosa* appeared to be Gram negative with *Proteus mirabilis*.

Isolate as the only Isolate that was Gram positive. Serratia Maracescens appeared to be different in strain in Urease test. Citrate Utilization test had only *Escherichia coli* as the only Gram negative Isolate with *Klebsiella aerogenes, Pseudomonas aeroginosa, Serratia marcescens* and *Proteus mirabilis* as the Gram positive Isolate.

Table 4: Biochemical characterization of gram-negative isolates

Test	*Escherichia coli*	*Klebsiella aerogenes*	*Pseudomonas aeruginosa*	*Serratia marcesscens*	*Proteus mirabillis*
Oxidase	–	–	+	–	–
Catalase	+	+	+	+	+
Urease	–	–	–	d	+
Citrate	–	+	+	+	+
Utilization	+				
Motility	+	–	+	+	+
Indole	+	–	–	–	–
Glucose	+	+	+	+	+
Sucrose	+	+	–	+	+
Mannitol	+	+	–	+	–
Lactose	+	+	–	d	–

Note: Key: D = different strains give different results.

Table 5: Biochemical Characterization of Gram-Positive Isolates

Test	Staphylococcus Aureus	Streptococcus Faecalis
Oxidase	–	–
Catalase	+	–
Coagulase	+	–
Urease	+	–
Motility	–	–
Glucose	+	+
Sucrose	+	+
Mannitol	+	+
Lactose	+	+

In Motility test, *Klebsiella aerogenes* was the only Gram negative Isolate with *Escherichia coli, Proteus aeruginosa, Serratia marcescens* and *Proteus mirabilis* as Gram positive Isolates. Indole test had only one Gram positive Isolate which was *Escherichia Coli*, the others were all Gram negative Isolates. Glucose test was more active with all microorganism gram positive in biochemical characterization of gram negative Isolates. *Pseudomonas aeruginosa* was the only gram negative Isolate recorded in sucrose test, with all other Isolates appearing to be gram positive Isolates. Mannitol test had two gram negative Isolates seen in *Pseudomonas aeuginosa* and *Proteus mirabllis* with *Escherichia coli*, *klebsiella aerogenes* and *serratia marcescens* as the only Gram positive Isolates.

Finally, Lactose test exhibits only two gram positive isolates which are *Escherichia coli* and *Klebsilla aerogenes* with *Pseudomonas aeruginosa* and *Proteus mirabillis* as gram negative Isolates with *Serratia marcescens* as an Isolate with different stains.

The Characterization of Gram positive Isolate in glucose, sucrose, and mannitol indicated positive in both *Staphylococcus aureus* and *Streptococcus faecalis* while oxidase, motility in both *Staphylococcus aureus* and *Streptococcus faecalis* indicated negative. However, catalase, Coagulase and Urease indicated positive for *Staphylococcus aureus* and negative for *Staphylococcus faecalis*.

The sensitivity test pattern of gram negative and gram positive Isolates in Table 6 shows that in nineteen isolates of *Escherichia Coli*, ampicillin, tetracycline and cotrimazole shows to be non-active while streptocycin was less active and nalidixicadic and colistin proved to be very active, however nitrofurantoin and gentamycin also was slightly active. However in a nine Isolates of *Proteus mirabilis*, ampicilin, tetracycline and cotrimazole showed non-active while Nalidixicadic was very active, further more for *Klebsiella aerogenes*, ampicilin, tetracycline, Streptomycin, Nitrofurantoin and Cotrimazole shows non-active while gentamycin and colistin was a little active,

Table 6: Antibiotic Sensitivity Test Pattern Of Gram Negative and Positive Isolates from Urine

Organisms	No. of isolates	AMP	TET	STR	NIT	NAL	GEN	COL	COT
Escherichia coli	19	0	0	2	7	9	5	11	0
Proteus mirabilis	9	1	1	3	6	8	7	6	1
Klebsiella aerogenes	5	0	0	0	0	0	2	3	0
Serratia marcescens	6	0	1	2	3	3	4	3	0
Staphylococcus aureus	1	0	0	0	1	0	0	1	0
Pseudomonas aeruginosa	4	2	3	2	0	0	4	1	3
Streptococcus faecalis	2	1	0	0	1	1	2	2	1
Total	**46**	**4**	**5**	**9**	**18**	**21**	**24**	**27**	**5**

Note: AMP – Ampicilin; STR – Streptomycin; NAL – Nalidixicadic; TET – Tetracycline; NIT – Nitrofuratoin; GEN – Gentamycin; COL – Colistin; and COT – Cotrimazole.

in serratia marcescens, ampicilin and cotrimazole shows non-active while gentamycin shows more active. In *Strephylococcus aureus*, ampicillin, tetracycline, streptomycin, nalidixicadic, gentamycin and cotrimazole indicated non-active while nitrofurantoin and colistin shows to be a little active. In four *Psendomones aeruginosa*, nitrofurantoin and nalidixicadic showed to be non-active while tetracycline and gentamycin showed to be active and finally in two Isolates of *Streptococcus feacalis*, tetracycline and streptomycin showed to be less active while gentamycin and colistin showed to be active, however in a total of forty-six Isolates, colistin proved to be more active in the organism while ampicillin proved less active in all.

27 Isolates showed to have 58.7% sensitivity while twenty-four Isolates of gentamycin was 52.2%, twenty-one nalidixicadic was recorded as 45.7%, nitrofurantoin with eighteen Isolates was 39.1% sensitivity, nine isolates of streptomycin showed 19.6%.however five Isolates of both tetracycline and cotrimazole was 10.9% respectively and four isolates of Ampicillin was recorded 8.7% (Table 7).

DISCUSSION

The result of this study shows that seven species of bacteria organisms were isolated from urine specimens examined. The isolates were *Escherichia coli*, *klebsiella aerogenes*, *Proteus mirabilis*, *pseudomonas aeruginosa*, *Serratia marcescens*, *Staphylococcus aureus* and *Streptococcus faecalis*. This study revealed that *Escherichia coli* were the most frequent bacterial organisms isolated from cases of urinary tract infection with an incident rate of 41.30%. The reason why *Escherichia coli* is highly prevalent in the urinary tract is most likely due to the fact that most infection may be endogenous, in which case, the source could have been from the patients intestine via the faeces or acquired from an exogenous source. Infections with *Escherichia coli* are associated with markedly acidic urine.

The concept of adherence properties of the organisms to the vulva and urethral region using

Table 7: Number of Isolates Sensitive to Antimicrobial Agents

Antimicrobial agents	No. Of sensitive isolates	% Sensitivity
Colistin	27	58.7
Gentamicin	24	52.2
Nalidixicailic	21	45.7
Nitrofurantoin	18	39.1
Streptocycin	9	19.6
Tetracycline	5	10.9
Cotrimazole	5	10.9
Ampilicillin	4	8.7
Total	**46**	**100**

ascending route may also contribute to the infection of the urinary tract (Kunin, 1987). *Proteus mirabilis* also shows *pseudomonas aeruginosa* amount for 10.9% while *Serratia marcescens* has the least incidence of 2.19%.

From this study, the percentage of the ratio of male: female occurrence is 27.7: 36:6. This shows that females were more prone to this infection than males. This is probably so because in males the anatomical length of the urethral (20cm) provides a distance barrier that exclude micro-organism from the urinary bladder. Conversely, the short urethral (5 cm) in females is more readily transferred by micro-organism (Prescott *et al.*, 1999). The most useful anti-microbial agents for treatments of urinary tract infections as obtained from antibiotics sensitivity as shown in Tables 6 and 7 were colistin 58.7%, gentamycin 52.2%, nalidixicadic acid 45.7%, nitrfurantoin 39.1 %. It was note worthy that ampicilin however is ineffective for the treatment of urinary tract infection. This study also shows that colistin is a better option for the treatment of urinary tract infection caused by gram positive and gram positive organisms.

CONCLUSION

From the result of this study, the following conclusions can be inferred

- It is clear that members of the family enterobacteriaceae are the most common urinary tract pathogens with *Escherichia coli* showing the highest occurrence.
- Urinary Tract infection is however a major problem, most of these organism which cause urinary tract infections usually results from the endogenous fecal bacteria which gain access to the urinary tract via retrograde movement through the urethra.
- Colistin and gentamycin could be effectively used for the treatment of urinary tract infection. However, there is the need to carryout further studies on the efficacy of these drugs.

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