



CLINICAL STUDY OF RECURRENT URINARY TRACT INFECTION TADIYA MAJARI-E-BOL MUTWATIR AND ITS MANAGEMENT WITH UNANI MEDICINES

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ABSTRACT

Recurrent urinary tract infection is a common problem faced by clinicians across many specialities . it is defined as ≥ 2 episodes of uti in the last 6 months or ≥ 3 episodes in last 12 months. The prevalence of utis worldwide was established to be around 150 million per year and the estimated number of utis per person per year is 0.5 in young females. It is more common in women and one in four women will develop a recurrence various risk factors predispose women of different age groups to recurrence. These factors include sexual intercourse; use of contraception, antimicrobials, oestrogen, genetics and distance of urethra from the anus of the different pathogens, Escherichia coli is the organism most commonly isolated. According to unani concept Tadiya majari-e-bol is caused by abnormal damavi and abnormal sanguineous humours and it is due to alteration in kamiyath and kaifiyath of akhlat providing favourable conditions for the growth of micro organisms causing infection. In the last decades the extensive use of antibiotics has resulted in the emergence of antibiotic resistant bacterial pathogens and adverse effects of repetitive antimicrobial therapy. So the complementary and alternative medicine, especially unani medicines has been recognized as an effective approach for the treatment of infection, hence to scientifically validate the efficacy of test drug formulation a clinical trial was conducted.

Keywords :

Recurrent uti ; Women ; E.coli ; Damvi; Safravi; Kulthi.

Aims and objectives : 1. to evaluate the safety of unani drugs in the management of rUti . 2.to evaluate the efficacy of unani drugs in the management of rUti. 3.to prevent recurrent uti patients from harmful effects of prolonged antibiotics usage and resistance..

Methodology :

The study was conducted as a single blind clinical trial to evaluate the safety and efficacy of poly herbal unani formulations in the management of rUti. The study is registered in CTRI as CTRI/2022/09/045671. The drugs were given in the form of decoction(joshanda) 150ml BD, before meals and a powder(sufoof) of 5gms was given BD after meals with three follow ups (15th, 30th, 45th) the pre and post treatment effects were assessed based on subjective and objective parameters.

Results and conclusion :

The subjective parameters like suprapubic pain; frequency ; burning micturition ; dysuria was reduced with extreme statistical significance ; the objective parameters like PUS cells in CUE is $p < 0.01$ and chisquare value is 103.4 and organism isolated in urine culture is $p < 0.05$ and chi square value is 63.5 were also found be significant without any adverse effect.

List of Abbreviations

' – present

'- female

♂ – male

^ – absent

t – after treatment

Bt – before treatment

rUti – Reccurent urinary tract

'CT – proximal convulated tubule

DCT – distal convulated tubule

Eg – Example grade

< lesser than

>greater than H/O history of

i.e – that is k+ - potassium ;

cl- chloride

Bc – before Christ

M.S – marital status % - percentage

HPF – high power focus

UC – upper class

LC – lower class

MC – middle class

M – married

UM – unmarried

1.INTRODUCTION

Recurrent urinary tract infection(rUti's) is one of the most common frequent bacterial infection accounting for 25% of all infections that often effects the urinary system including the kidney, ureters, bladder and urethra. The bacterial pathogens

invade the urinary tract involving the lower and upper urinary tract and may sometimes spread to the blood stream resulting in several clinical syndromes.(34,35)

Recurrent Urinary tract infection(rUti) - Tadiya Majari-e-Bol Mutwatir is define as two episodes of acute bacterial cystitis along with associated symptoms and positive urine culture within a period of 6 months or three episodes within a period of 1 year or, (34,35)

Recurrent UTI - Tadiya Majari-e-Bol Mutwatir is define as 3 uncomplicated Uti's with positive culture during a period of 1 year and or 2 uncomplicated utis during a period of 6 months

It may also define as inflammatory response of the urothelium to bacterial invasion. According to NHAMS(National Health Ambulatory Medical Care Survey) to physician, 1.5 million emergency visits and 300,000 hospital admission in united states annually.(36)The prevalence of Utis worldwide was established to be around 150 million per year and the estimated no of utis per person per year is 0.5 in young females.(35)The incidence is more common in women than men with the ratio of 8:1 approximately one or three women suffer a uncomplicated uti before the age of 24 and the life time prevalence of atleast one symptomatic Uti in women has been estimated to be over 50- 60% with about 26% of women having a recurrence, recurrences usually within 3 months of initial infection. Over the past decades our ability to diagnose treat and manage recurrent Utis has evolved due to additional insight into the pathophysiology of rUti a new appreciation for the adverse effects of repetitive antimicrobial therapy, rising rates of bacterial resistance. and better reporting of the natural history and clinical outcomes of acute cystitis and rUti owing to dreadful complications of rUti and lack of relatively safe and effective drugs for it's management, search for better and safe herbal medicines especially Unani medicines with therapeutic agent becomes a thrust area for research.

2.AIMS AND OBJECTIVES

- ✓ To evaluate the safety of unani drugs in the management of rUti.
- ✓ To Evaluate the efficacy of Unani drugs in the management of rUti.
- ✓ To Prevent recurrent Uti patients from harmful effects of prolonged antibiotics usage and resistance.

3.REVIEW LITERATURE

Recurrent Uti also poses significant challenges and has a major impact on quality of life current evidence indicates that the rate of recurrence following a initial Uti is high.

Interestingly the majority of women experiencing the recurrence (rUti)despite culture positive antibiotic treatment have no anatomical abnormalities in the lower and upper urinary tract and being otherwise healthy individuals.(40)

Untill 2000 there was no generally accepted and broadly used definition for rUti since then the majority of studies publications on rUti define the condition and represents an acceptable compromise in contemporary studies.

The guidelines was created by AUA/CUA/SUFU 2022 i.e American Urological

Association in coordination with Canadian Urological Association and the society of Urodynamics, Female Pelvic Medicine and Urogenital reconstruction which was based on clinical practices in the diagnosis and treatment of rUti (34)

A 1990 study at the university of Michigan involving female students aged 17-39 years showed that after a single Uti event 27% of women will experience a second recurrence in the following 6 months with a further 3% experiencing a third Uti with a same time period.(37)

An older study from Denmark showed that for women aged 16-65 years after initial Uti rate of recurrence is highest during the first 3 months post treatment and between 25-

35% of women will have recurrence within 3-6 months .(38)

The studies of recurrence that include older women are rare the results of a single study on recurrence indicated that 44% of women aged 17-82 years will experience within 12 months.(39)

4.REVIEW OF UNANI LITERATURE

The treatment for Urinary tract infection, recurrent Utis began before the discovery of bacteria.

Urinary tract infections have been described since ancient times with the first documented description in the Ebers Papyrus 1550 BC, it was described by the Egyptians as sending forth heat from the bladder and they also noticed the stones in the bladder and kidney of Mummies, effective treatment didn't occur until the development and availability of antibiotics in the 1930s before that Gum Acacia, honey, Cucumber water and wine were used and blood letting from veins(FASD) was perform as a source of remedy for treatment .

In ancient Unani literature there in no description of recurrent Uti(Tadiya Majari e Bol Mutwattir) because of unavailability of biochemical analysis of Urine prior to invention of microscope many physicians proposed that some living organism which cannot be seen with naked eye are responsible for causing various diseases they get entry into the body multiply there and produce disease after the invention of electron microscope these living organisms were studied under the microscope and named as micro organism

Though in ancient literature there is no disease mentioned with such a nomenclature but her are descriptions of similar disease by the name of various heading as warm e Kulliya(Nephritis) warm e Masana (Cystitis) Hurqat e Baul(Burning Micturition) Taqtir ul Baul(Dribbling of urine) Tadiya e Majari Bol (Urinary tract infection)

According to great unani pysicians, warm-e-masana and tadiya Bol mutwattir occurs due to abnormal Damwi (sanguinous) or abnormal safravi (bilious) and sometimes in combination of both gairtabayi Khilt(abnormal humours) (19)

According to Humoral theory of Buqrat – Hippocrates Father of Medicine the cause of Tadiya e Majari Bol Mutwattir is alteration of Mizaj(temperament) to soe e Mizaj (Abnormal Temperament) followed by alteration in kamiyath(quality) of Akhlat provides favourable culture media for the growth of micro organisms which leads to tadiya (infection)

Abubakar Mohammed ibn Zakrya Razvi gave the first description of Tadiya Majari e Bol in 10th volume of his famous book Al Havi. Rhazes also emphasis over the efficiency of maul jabn to reduce acidity and burning during micturition (23)

Desqridous 100AD in his book kitab ul Hashayash states that

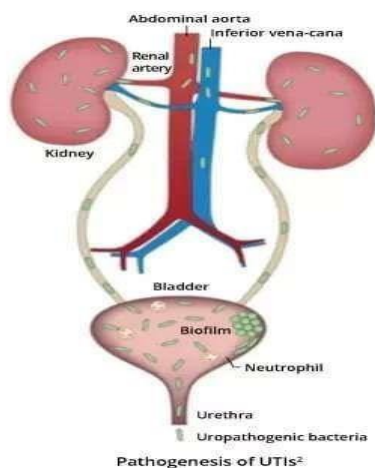
The douching of butter and milk cream is benefical in case of warm e Masan(cystitis) and Hurqat e Masana (Buring Micturation)

He also described that Habb ul Aas is a benefical drug for Hurqat e Baul (Burning Micturation)

Ibn e sena 980-1030 AD in his book cannon of medicine describe the disease as Hurqat e Baul (20) Ismail jurjani 1140-1236

AD in Zakhera e khawarzam shahi described the disease as hurqat e Baul.

5.PATHOGENESIS



1. **CONTAMINATION**
Uropathogenic bacteria from vagina contaminate the periurethral area
2. **COLONIZATION IN BLADDER**
Uropathogenic bacteria colonize the urethra and migrate to the bladder
3. **IMMUNE RESPONSE**
Neutrophil infiltration begins to get rid of the uropathogenic bacteria
4. **PENETRATION**
Neutrophil-resistance uropathogenic bacteria multiply and form a biofilm
5. **ASCENSION**
 - These bacteria produce toxins that induce host cell damage and inhibit peristalsis of the bladder - reducing urine flow
 - Cell damage releases nutrients that promote bacterial survival and ascension to the kidneys
6. **COLONIZATION IN KIDNEY**
Uropathogenic bacteria colonize the kidneys and produce toxins that damage the kidney cells
7. **BACTERAEMIA**
If left untreated, UTI can progress to bacteraemia if the uropathogenic bacteria enter the blood circulation

Bacteria in the entire flora periodically gain access to the genitourinary tract. Close proximity of the anus to the genitourinary tract in women is a likely factor. Subsequent bacterial colonization of uroepithelial cells sets the stage for persistent bacteriuria.

Opposing colonization's are several host factors like acid PH, normal vaginal flora, type specific cervicovaginal antibodies and flushing effect of urine during micturition.

Following periurethral colonization uropathogens gain access to the bladder via the urethra; to the kidneys via the urethra; and to the prostate via the ejaculatory ducts.

The urethra and ureterovesical prevent ascension. Urine adequately supports the most uropathogens, the bladder has several protective mechanisms to prevent its colonization and growth.

1. Mucopolysacchride(urine slime) layer covers the bladder epithelium and prevents colonization.
2. Tamm horsfall protein, adheres to p.fimbriae of the micro-organisms and prevent colonization.
3. Urine flow and bladder contraction serve to prevent stasis and colonization.(4)
4. The basics infection which was postulated and hypothesized by renowned ancient scholars of unani medicine are based on two factors i.e quwat e istedad (favourable condition)or susceptibility and Quwat e Mudabbir-e-baddan (immunity) of the host for infection

As long as Quwat e Mudabbir-e-badan(immunity) is strong and Quwateistedad(susceptibility) is low infection does not occur and vice versa.

In unani system of medicine it is very much clear that only the Quwat-e-istedad (susceptibility) and quwat-e-mudabbir e badan (immunity) are the main factors that can be elaborate as the micro organisms did not do anything, rather these favourable conditions are created inside the human body tissue and organs by alteration in the original temperament of the concerned organ or body system.

Quwat-e-mudabbir e badan (immunity) also maintain the four humours in their specific proportion and maintains health while disproportion leads to manifestation of various pathological states and diseases

According to unani concept, when human body is attacked by the micro organisms Quwat-eIstedad(favourable condition) and Quwat-e-Mudabbir Badan(immunity) is altered again in following way

1. Good humours (Akhlat Mahmooda)are eaten up by the micro organisms
2. Their toxins are added to the akhlat
3. Owing to these toxins certain other organs are also affected and therefore mizaj and akhlat are again altered to the determinant of the body.
4. However if the immunity and tabiyah is strong enough a good and healthy sign is seen and there will be production of specific humors or (Immunoglobulins) against the micro organisms to get rid of infection.

6.ETIOLOGY

Common microbial pathogens causing UTI are

1. Escherichia coli (E.coli) 80-90%
2. Klebsella, Enterobacter 10-40%
3. Proteus, morganela or providencia 5-10%
4. pseudomonas aeruginosa -10%
5. taphylococcus saprophylicus 2-10%
6. nterococcus 2-10%
7. andida Albicans 1-2%
8. taphylococcus aureus 1-2% (4)

The most common causative organism is E.coli affecting 80 % of acute infections in patients without catheters urological abnormalities or calculi .

Other gram negative rods especially Proteus and Klebsiella spp and occasionally Enterobacter spp accounts for a smaller proportion of uncomplicated infections These organisms along with Serratia spp and Pseudomonas spp assume increasing importance in recurrent infections.

Proteus (through the production of urease) and Klebsella (through the production of extracellular slime and polysaccharides) predispose to stone formation and are isolated more frequently from patients with calculi .

Gram Positive cocci plays a lesser role in UTIs , However Staphylococcus accounts for 10 – 15 % acute symptomatic UTIs in young female patients, Enterococcus occasionally cause Acute Uncomplicated Cystitis in women .

More commonly Enterococci and Staphylococcus aureus cause infections in patients with renal stones or with previous instrumentation or surgery.

Staphylococcus epidermidis is a common cause of catheter associated Uti.(5)

According to ancient unani physicians causes of Tadiya Majari E Bol Mutwatir are not only microbial but disturbance in Asbab E Sittah Zaruriyah and weakening of the

Quwat E Mudabbir Ul Badan

Zoaf-e-kulliyya wa masana (weakness of kidney and bladder) Soo-e-mizaj majari-e-bol(impaired temperament of urinary tract) Muzmin amraz(chronic disease) Nugztaghzia(imbalanced die)t Poor hygiene, pregnancy.

7.Clinical features

- Burning micturition
- Urgency or
- frequency of micturition
- Dysuria
- Haematuria

- Incontinence or
- retention of urine
- Fever with chills and rigor
- Pain over loin or suprapubic region
- Nausea and vomiting (3)

8.RISK FACTORS

1.Gender and sexual activity

The female urethra appears to be particularly prone to infection because of its proximity to the anus; and its short length (i.e 4cm) and its termination beneath the labia.

Sexual intercourse causes the introduction of bacteria into the bladder and is associated with the onset of UTIs Use of spermicidal compounds with a diaphragm or cervical cap or use of spermicide coated condoms dramatically alters the normal introital bacterial flow.

2.Obstruction

Any impediment to the free flow of urine i.e Tumor, structure, stone or prostatic hypertrophy results in infections.

3.Neurogenic bladder dysfunction

Interference with bladder innervation as in spinal cord injury, tabes dorsalis, multiple sclerosis, diabetics is associated with UTI (5)

4.Pregnancy UTIS are detected in 2.8% of pregnant women.

5.Lack of circumcision has been identified as a risk factor UTI in both male neonates and young males.

9.Complications

1. Chronic cystitis
2. Pyelonephritis
3. Urethritis
4. Renal vein thrombosis
5. Acute Renal Failure; Sepsis

10.LABORATORY ASSESSMENT OF URINE

The urine should be tested as apart of general medical examination this should not be confined to patients with known renal or urinary tract disease.

COLLECTION OF URINE SAMPLE

Urine sample should be passed in a clean container without additives.

Testing should normally be conducted as soon as possible and if delayed more than 2 hours the urine should be refrigerated (not frozen) and returned to room temperature before testing .

A midstream sample is essential for microbiological assessment and desirable for microscopic examination. Samples collected through urethra always contain bacteria, but usually in numbers $<10^3$ CFU/ml in an immunocompetent adult. During collection of the sample in female patients vaginal discharge should be avoided

ROUTINE EXAMINATION OF URINE It consists of

1. Physical examination
2. Chemical examination
3. Microscopic examination

1. Physical examination

Volume : normal adults usually pass between 750ml to 2500ml of urine in 24 hours.

The minimum urine output compatible with normal renal excretion function varies from person to person and also with other factors such as a diet

Abnormal, low urine output i.e oliguria or anuria implies that the flow rate is below the minimum quantity usually < 500 ml / day.

Colour : Normally fresh urine is clear but varies in colour. Clear urine left to stand may become cloudy or form fine strands of solid material due to precipitation of phosphates and urates.this is of no significance

Appearance : A cloudy appearance of fresh urine is usually due to the presence of pus cells often with bacteria. A brownish and cloudy appearance may be due to the presence of blood or pigment as in myoglobinuria.other colour changes suggest the presence of drugs or chemicals

Odour : freshly passed urine has a characteristic aromatic odour due to volatile organic acids. Bacterial action causes ammoniacal odour , ketosis leads to fruity odour

CHEMICAL EXAMINATION

PH : Urinary pH varies between 4.5 and 8.0 depending primarily on dietary intake. Most people pass acidic urine most of the time except some vegetarians, renal tubular acidosis, metabolic alkalosis.

Specific gravity: Urinary specific gravity is an index of the concentration of solute (e.g.) sodium, chloride, urea, glucose) in the urine. It varies in health between 1.002 and 1.035. High values suggest that the kidney is actively reabsorbing water in patients with suspected fluid depletion (fever, thirst) or renal failure, diabetes mellitus, due to reduced renal perfusion. Abnormally low values indicate failure of the renal tubules to concentrate urine; in patients with unusually high urine volumes as in diabetes insipidus. Glucose: The stix test is specific for glucose. Small amounts of glucose may be excreted by the normal kidney. These amounts are usually below the sensitivity of this test but on occasion may produce a colour between the 'Negative' and 5mmol/ I colour blocks.

Ketones. The stix test reacts specifically with acetoacetic acid, one of the ketones found in urine. Normal urine is usually negative but false positive results may occur with highly concentrated urine specimens. Diabetic ketoacidosis. Is the most important cause of ketonuria, but it also occurs in starvation or very low carbohydrate diets.

Protein: reading greater than trace indicates significant proteinuria. Fresh urine is taken for protein testing. Proteinuria may be due to increased leakage from glomeruli or tubular dysfunction.

Bilirubin and urobilinogen: Bilirubin is normally absent from urine, whereas urobilinogen may be present-up to 33 μ mol/l in health. Abnormalities of either constituent in urine require investigation for possible hemolysis or hepatobiliary disease.

3) MICROSCOPIC EXAMINATION

The microscopic examination may include some or all of the following

White blood cells (WBC): WBC's in Urine usually indicate inflammation or infection of the urinary tract

Red blood cells: RBC in urine can be caused by inflammation or injury to kidneys or urinary tract **Epithelial cells:** High concentration of epithelial cells is typically caused by infection or inflammation of urinary tract.

Crystals: Crystals may be formed by various particles which are dissolved in urine. Crystal formation may be due to abnormal pH balance or a higher-than-normal concentration of particles. Crystals formed in the kidney may lead to development of kidney stones.

Casts: Casts are the cylindrical particles formed from the proteins secreted by kidneys.

Mucus: Mucus in the urine may be the results of a urinary tract infection or condition affecting the digestive system.

Bacteria: Bacteria in urine is usually indicative of a urinary tract infection.(40)

11.EXAMINATION OF URINE (UNANI REVIEW)

Diagnosis of diseases depends on observation of three important factors in Unani system of Medicine i.e. Pulse, Urine and Stool. Examination of urine is not only important in clinical practice but also the backbone of diagnosis for nearly all diseases in unani system of medicine.

CONDITIONS FOR EXAMINATION OF URINE:

According to Sheikh the following conditions should be kept in mind while examining the urine

Urine should be collected early in the morning

Urine should not be retained for too long in urinary bladder The whole urine should be collected.

Before the collection of urine no food or drink should be taken.

Those substances should not be applied to the skin and nails which may give colour to urine, for example henna.

Specific diuretic drugs (ie, diuretic of phlegm and bile etc) help in excretion of specific materials or humor . Such drugs should not be taken.

Certain substances should not be taken which may give colour to the urine for example Saffron changes the urine colour red or yellow, purging cassia makes the urine green, Alumuri which makes the urine dark black and wine which imparts its own colour.

8.Undue physical and mental exercises should be avoided these too colour the urine

Fasting, lack of sleep, fatigue, hunger and outbursts of anger make the urine red or yellow.

Urine sample should be protected from exposure of heat or cold. Exposure of sun (heat) tends to produce fermentation and cold air makes the urine so dense that it fails to yield even the usual deposit appearing after normal digestion and metabolism

The glass should be clear, colourless, wide mouthed and must be thoroughly washed before use .

Examination should not be carried at once but after the urine have been allowed to settle for some time.

For culture and sensitivity test, urine must be collected in sterile container and it should be the mid stream urine.

The specimen of urine should be examined from both close and distance.

Urine looks clear If viewed from distance and dense when viewed from close range.

Urine should be examined in good light .(10)

12.Methodology

The clinical study was carried out to assess the efficiency and therapeutic response of unani drugs in the management of **Recurrent Urinary Tract Infection – Tadiya Majari- e- Bol Mutwatir** at out patient department of Govt Nizamia General Hospital,

Charminar, Hyderabad during the period of 2022-23, under the guidance of Dr Shahbaz Ahmed, MD and supervision of Dr Mohammed Ahsan Farouqi, HOD Dept of Moalejat, Govt Nizamia Tibbi College Hyderabad.

The study is registered in CTRI as CTRI/2022/09/045671.

The study was conducted on patients from both the gender who has attended the out patient department of Govt Nizamia General Hospital Charminar, Hyderabad.

Total 60 patients from out patient were registered out of which 40 patients are selected for the study.

The study was conducted for 6 weeks(45 days) with regular follow up once in a week(7 days), clinical manifestation of these patients were recorded in specially designed proforma, the consent is taken after counselling and explanation.

Patients are selected based on inclusion and exclusion criteria.

Inclusion criteria

1. Patients of both gender
2. Age group between 18-60 years.
3. Patient with symptoms as follows
 - Burning micturition
 - Urgency : frequency of micturition
 - Haematuria
 - Supra pubic pain or lower abdominal pain
 - Fever with chills and rigor
 - Nausea and vomitings
4. Patients with renal calculi

Exclusion Criteria

1. Complicated UTIs
2. Patient with pregnancy
3. Chronic infections like T,B ; Syphillis ; Gonorrhoea
4. Patients with congenital abnormalities like Poly Cystic kidney disease ; Renal Agenesis Renal Hypoplasia Uretrovesical junction obstruction.

Withdrawal Criteria

Patients not giving proper follow up.

Those showing side effects with drugs.

Patient landing in serious complications like chronic cystitis; pyelonephritis; AKI on CKD

INVESTIGATIONS

Routine Investigations

- ✓ CBP ✓ ESR ✓ LFT ✓ RFT
- ✓ RBS

Specific Investigation

- CUE;
- Urine Culture and Sensitivity .

Efficacy Assessment

The efficacy of treatment was assessed on the basis of subjective and objective parameters.

Subjective parameters

- Urgency, frequency in micturition
- Dysuria, Dribbling
- Supra pubic pain
- Fever with chills

Objective parameters

Assessment by clinical examination and lab investigation which includes Bacteriuria; Pyuria; Elevated ESR and positive culture.

Selection of patients

Patients with signs and symptoms of recurrent **Urinary Tract Infection – Tadiya Majari e Bol Mutwatir**, were taken for research work. The patients were advised for laboratory investigation and then selected according to inclusion and exclusion criteria.

During selection procedure the patients as present complaints; present and past history, drug history ; social history are thoroughly studied and noted on the case sheet ; the patient general, local, systematic and vital examination is performed and noted on the case sheet.

Informed consent

Patients enrolled in study were given the information sheet having details about the nature of the study and method of the treatment. They were given the opportunity to ask question and if agreed they were asked to sign the informed consent form.

Study Design

Single blind clinical trial.

Sample size –

Sample size was determined as 40 patients.

Duration of treatment

The duration of treatment was 45 days. follow up was done every week(7th day) and findings were recorded on a proforma

prepared for the purpose.

Selection Of Drugs For Clinical Trial

Drugs which are selected for the trial were finalized on the basis of efficacy in management of Tadiya Majari e Bol Mutwatir and their pharmacological effects; easy availability with least side effects.

Drugs used in the present study are having following pharmacological effects.

- Anti inflammatory – Muhallil e Auram
- Antiseptic – Daaf e Taafun
- Diuretics – Mudire e Bol
- Antipyretics – Daaf e Bukhar; Musakkin e Hararat.
- Blood purifiers – Musafiyath
- Analgesics – Musakkin;

Method of treatment

In consist of Decoction – Joshanda – 150ml – BD

Sufoof powder – 5gms BD.

FORMULA OF DECOCTION 1.

Kharkhask – 5gms.

2. Kulthi – 5gms.

Method of preparation

The above drugs were grinded and given to the patients and instructed to soak in 150ml of water and boil till the water reduces to half. Then the obtain filtered 75ml should be taken in morning and evening before meals.

FORMULA OF SUFOOF

1. JUFT E BALOOT – 1gms
2. SHOR –E- KHALMI – 1gm

- 3. USHBA DESI – 1gm
- 4. CHOBCHINI – 1gm
- 5. GAJGA – 1gm

Method of preparation

The above drugs were grinded well to coarse powder form and given to the patients and instructed them to take 5gms after food in morning and evening.

12.Observations and results

Frequency table

Table 1 : Showing distribution of patients according to age

Age	Frequency	Percent
<or = 20	2	5.0
21-30	17	42.5
31-40	11	27.5
41-50	7	17.5
51 - 60	3	7.5
Total	40	100.0

Fig 1 : showing distribution of patients according to age

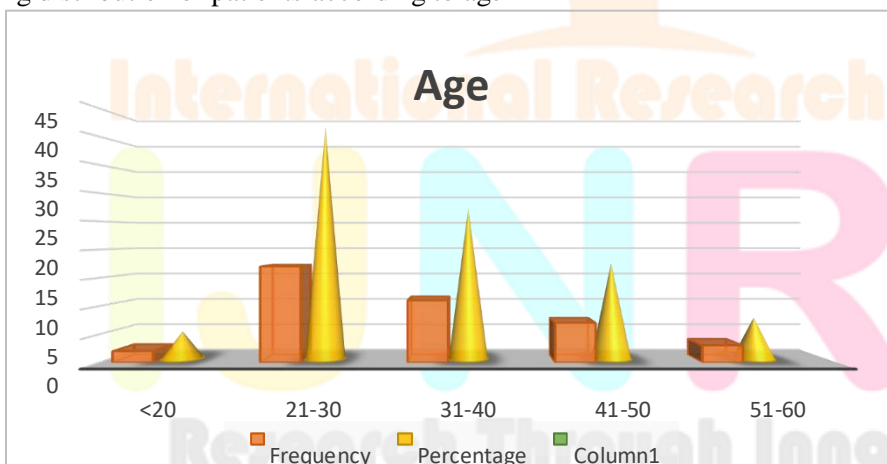


Table 2 : showing distribution of patients according to gender

Gender	Frequency	Percent
F	27	67.5
M	13	32.5
Total	40	100.0

Fig 2 : showing distribution of patients according to their sex

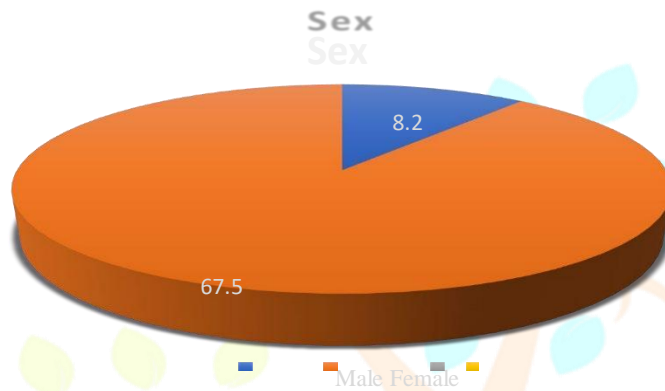


Table 3 : Showing distribution of patients according to their religion

Religion	Frequency	Percent
Hindu	7	17.5
Islam	33	82.5
Total	40	100.0

Fig 3 : showing distribution of patients according to their religion

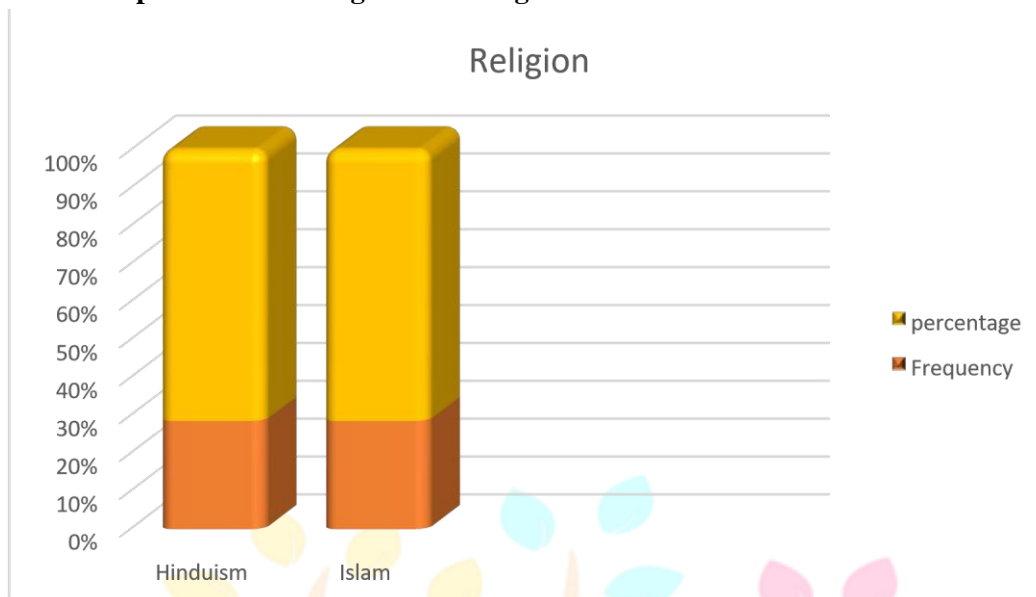
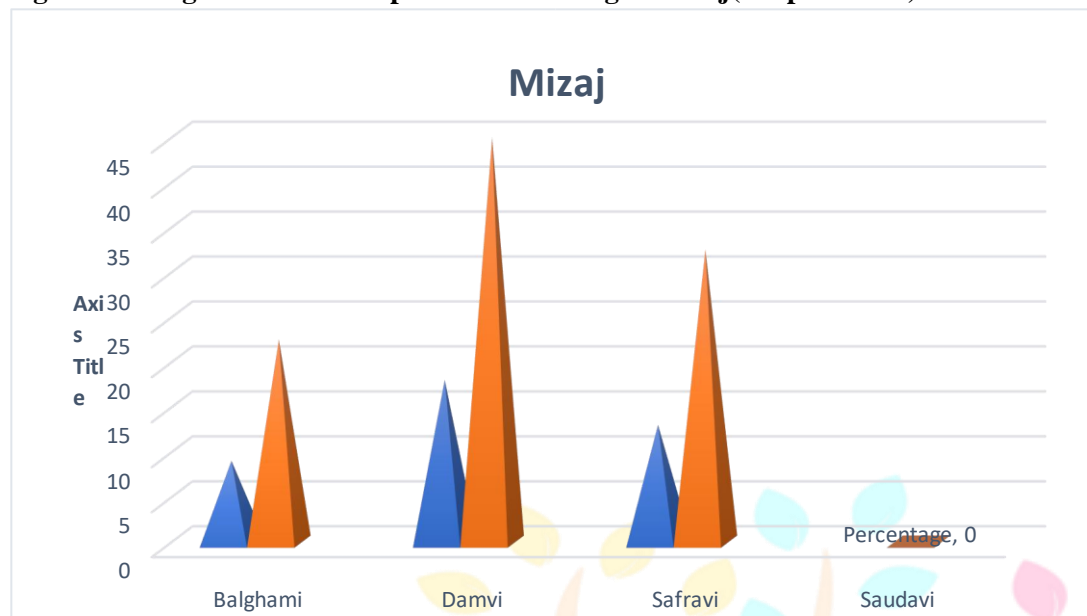


Table 4: showing distribution of patients according to mizaj(temperament)

Mizaj (temperament)	Frequency	percent
Balghami	9	22.5
Damvi	18	45.0
Safravi	13	32.5
Saudavi	0	0
Total	40	100.0

Fig 4 : showing distribution of patients according to mizaj(temperament)**Table 5 : showing distribution of patients according to socio-economic status**

Socio economic status	Frequency	Percent
LC	3	7.5
MC	34	85.0
UC	3	7.5
Total	40	100.0

Fig 5 : showing distribution of patients according to socio-economic status

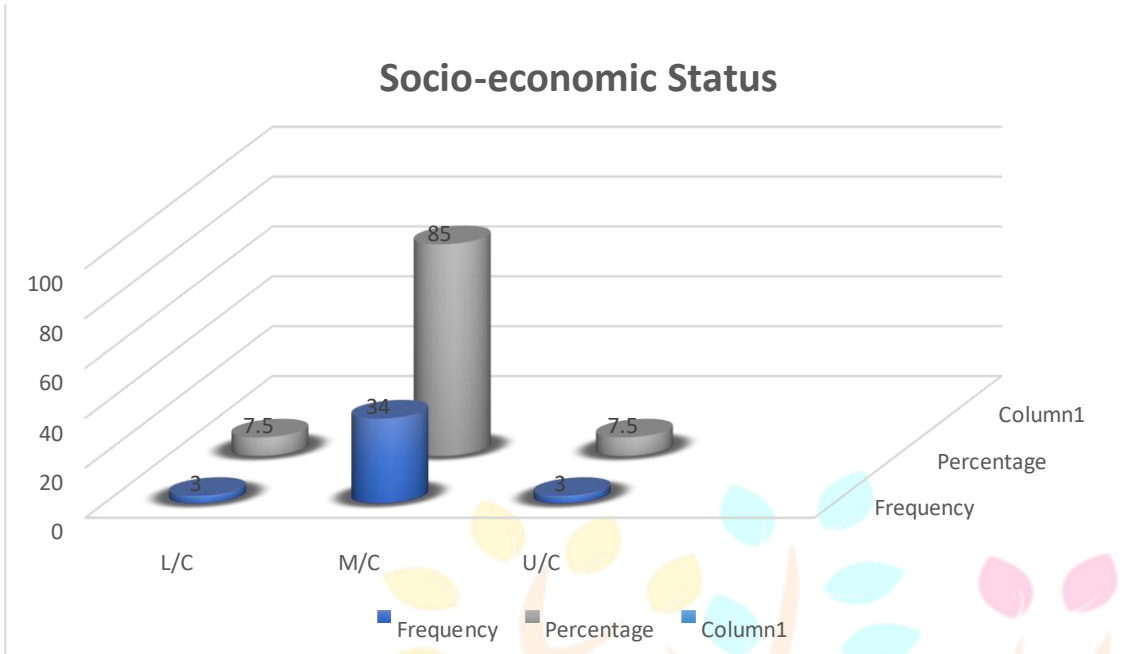


Table 6 : Showing distribution of patients according to marital status

Marital status	Frequency	Percent
Married	26	65.0
Unmarried	14	35.0
Total	40	100.0

Fig 6 : showing distribution of patients according to marital status

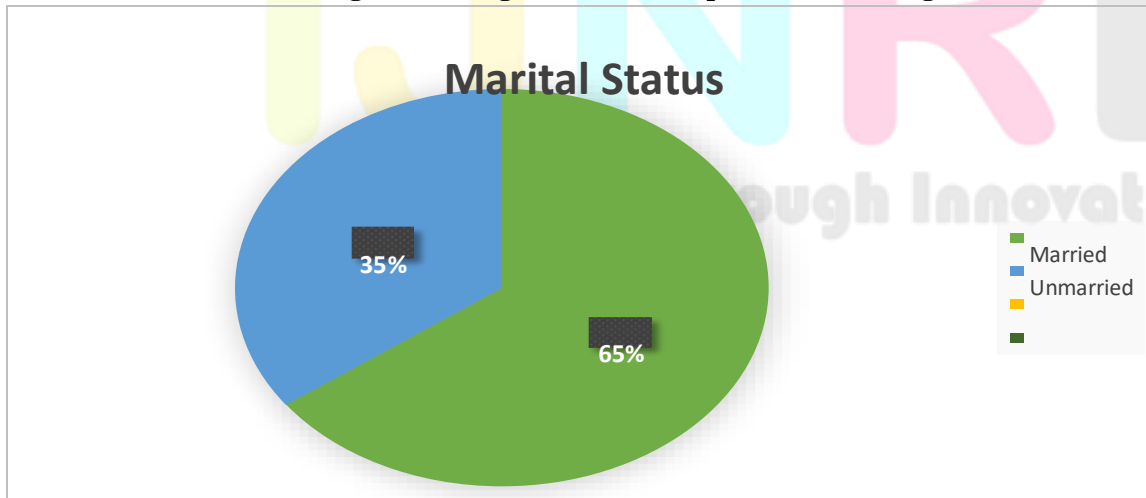


Table 7 : showing distribution of patients according to occupation

Occupation	Frequency	Percent
Business	3	7.5
Driver	1	2.5
Employee	1	2.5
Housewife	10	25.0
Nurse	2	5.0
student	13	32.5
teacher	4	10.0
worker	6	15.0
Total 3	40	100.0

FIG 7 : showing distribution of patients according to occupation.

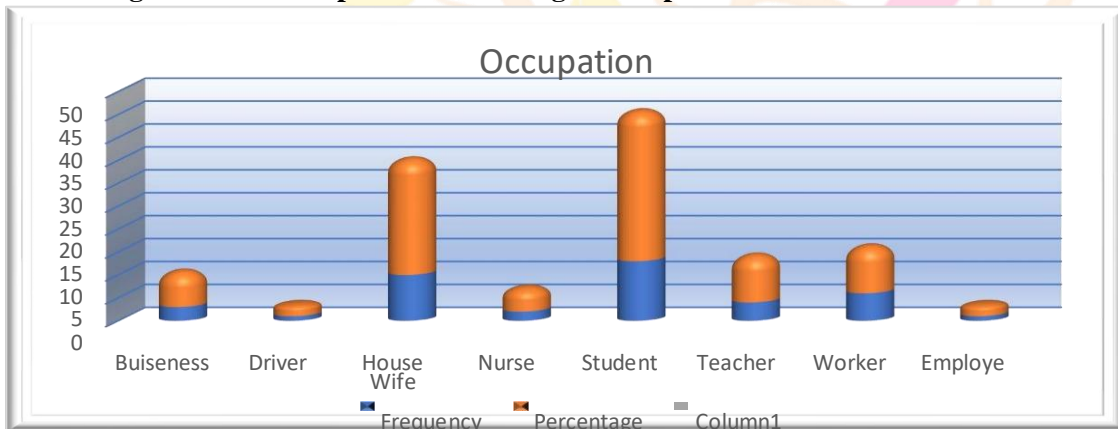


Table 8 : showing distribution of patients according to their diet

Diet	Frequency	Percent
Mixed	33	82.51
Veg	7	17.5
Nonveg	0	0
total	40	100.0

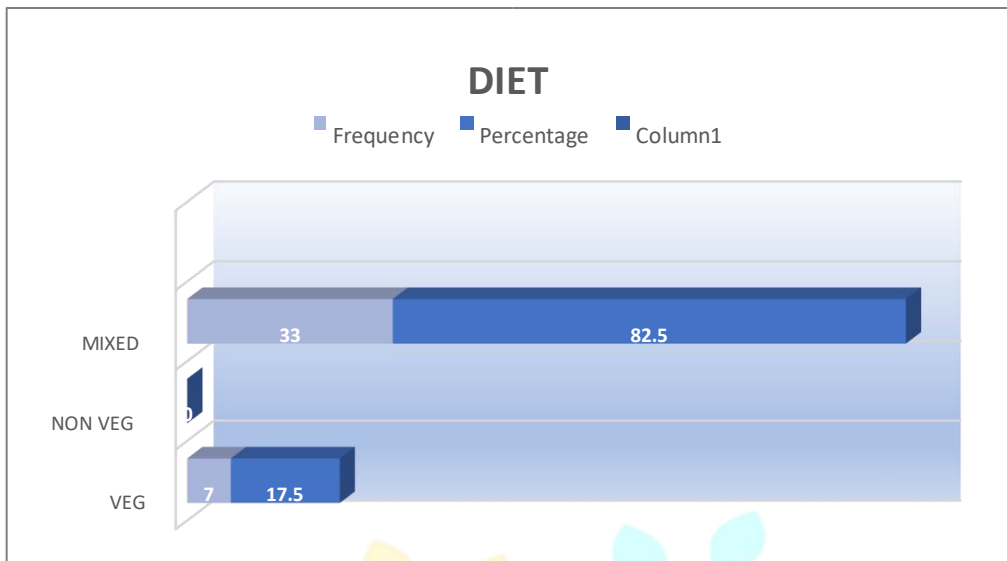
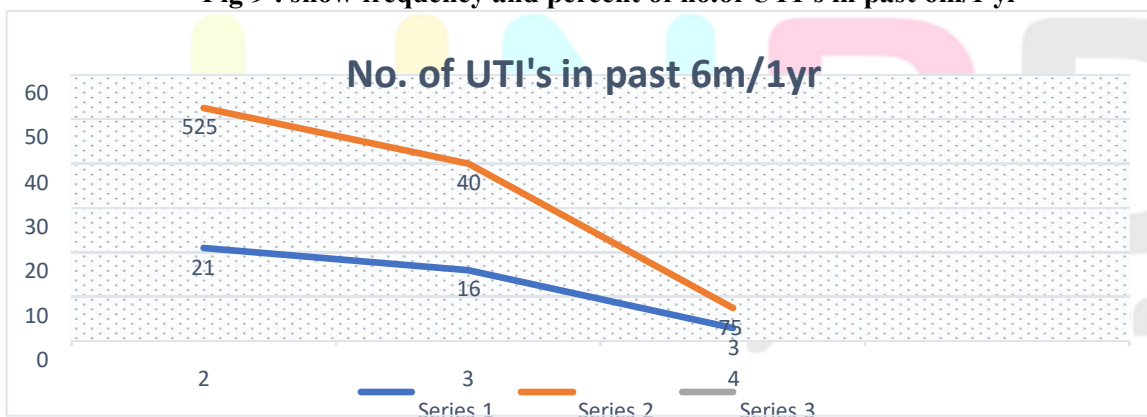


Fig 8 : showing distribution of patients according to their diet

Table 9 : showing graph of number of UTI'S cases in past 6month/1 year

Uti's in past 6 months/year	Frequency	percent
2.00	21	52.5
3.00	16	40.0
4.00	3	7.5
Total	40	100.0

Fig 9 : show frequency and percent of no.of UTI's in past 6m/1 yr



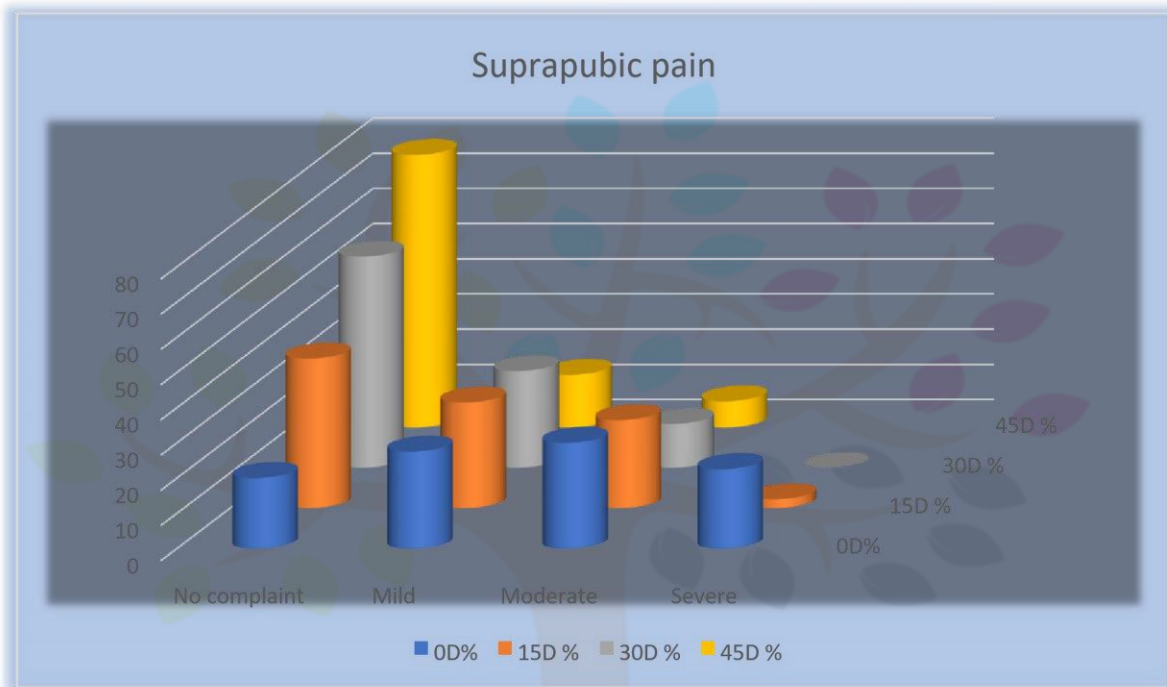
SUBJECTIVE PARAMETERS

1. SUPRAPUBIC PAIN

GRADES	0 DAY	15 TH DAY	30 TH DAY	45 TH DAY

No Complaints	8(20.0)	17(42.5)	24(60.0)	31(77.5)
Mild	11(27.5)	12(30.0)	11(27.5)	6(15.0)
Moderate	12(30.0)	10(25.0)	5(12.5)	3(7.5)
Severe	9(22.5)	1(2.5)	0(0)	0(0)

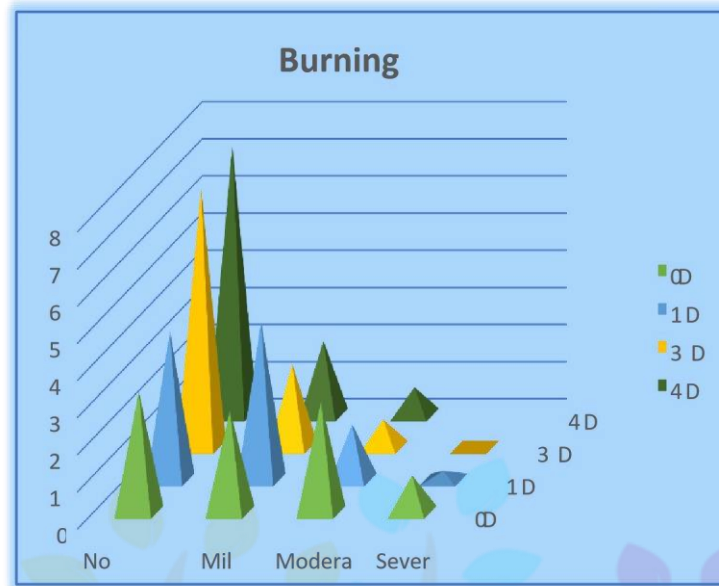
Fig : showing suprapubic pain cases



2. Burning micturition

GRADES	0 DAY	15 TH DAY	30 TH DAY	45 TH DAY
No Complaints	13(32.5)	16(40.0)	28(70.0)	29(72.5)
Mild	11(27.5)	17(42.5)	9(22.5)	8(20.0)
Moderate	12(30.0)	6(15.0)	3(7.5)	3(7.5)
Severe	4(10.0)	1(2.5)	0(0)	0(0)

Fig: showing burning micturition



3. Dysuria

GRADES	0 DAY	15 TH DAY	30 TH DAY	45 TH DAY
No complaints	18(45.0)	28(70.0)	29(72.5)	33(82.5)
Mild	15(37.5)	10(25.0)	10(25.0)	6(15.0)
Moderate	6(15.0)	2(5.0)	1(2.5)	1(2.5)
Severe	1(2.5)	0(0)	0(0)	0(0)

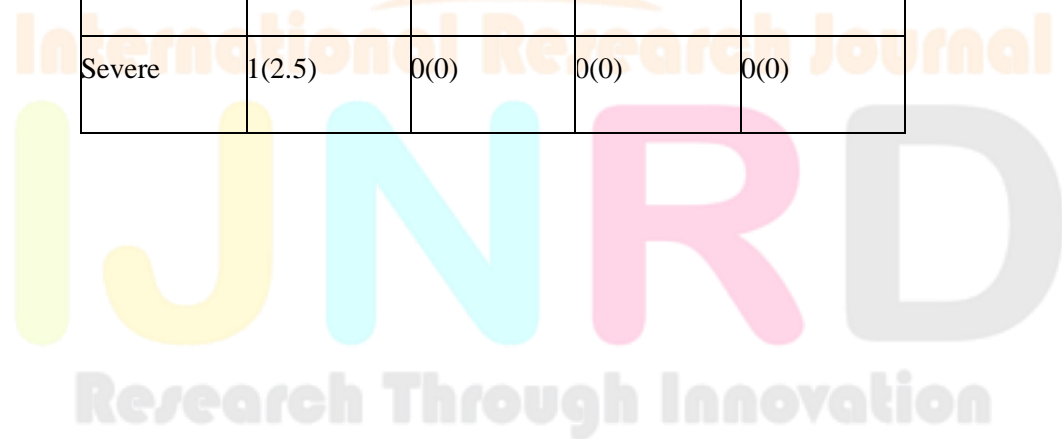
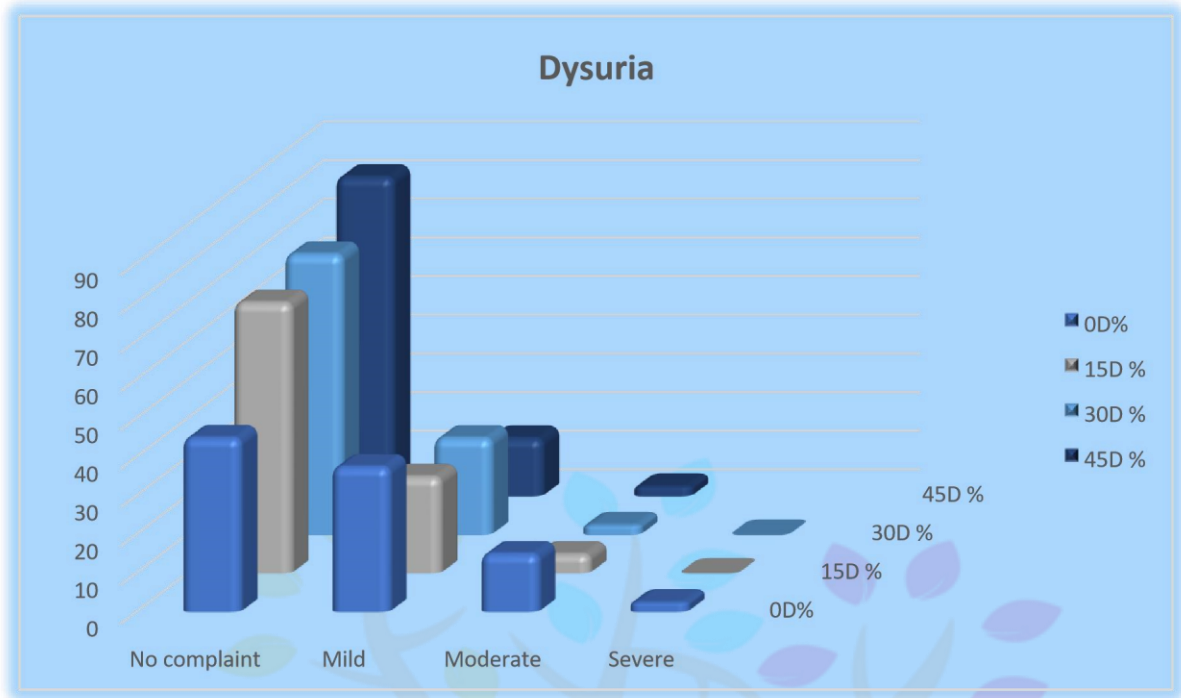


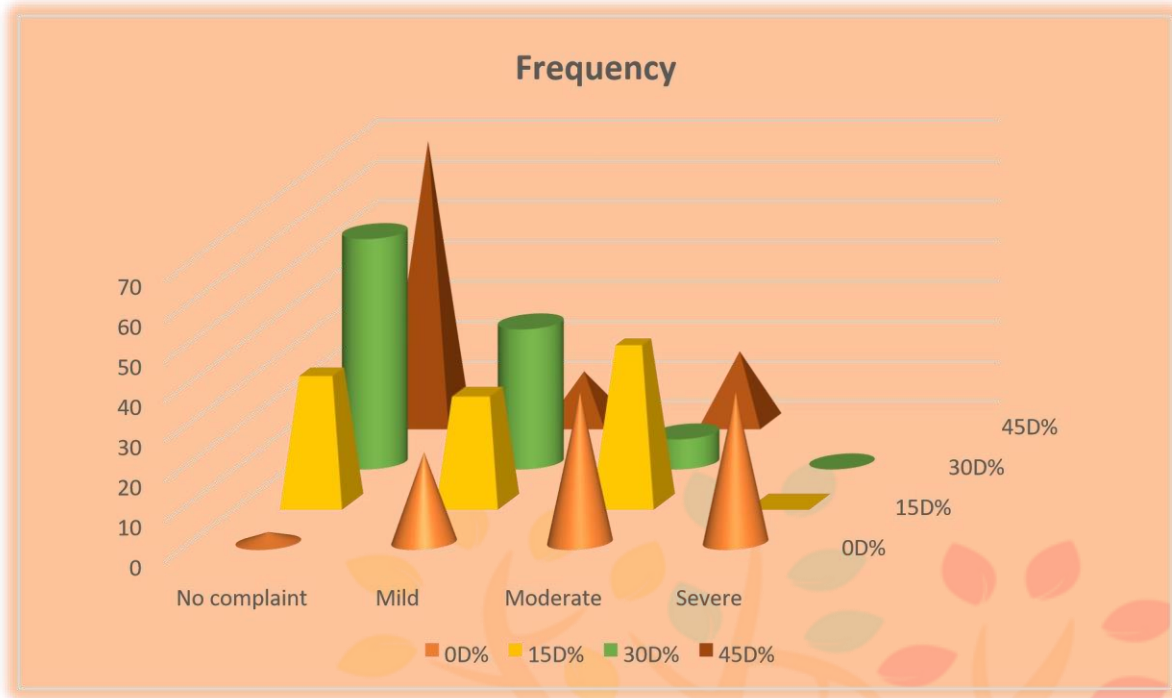
Fig: showing Dysuria



4. Frequency

GRADES	0 DAY	15 TH DAY	30 TH DAY	45 TH DAY
No complaints	1(2.5)	13(32.5)	23(57.5)	28(70.0)
Mild	9(22.5)	11(27.5)	14(35.0)	5(12.5)
Moderate	15(37.5)	16(40.0)	3(7.5)	7(7.5)
Severe	15(37.5)	0(0)	0(0)	0(0)

Fig : showing frequency



Objective Parameters:

Table : Pus Cells Before Treatment

Pus cells	Frequency	Percent
1-3	1	2.5
2-3	2	5.0
2-4	5	12.5
2-6	1	2.5
4-5	1	2.5
4-6	7	17.5
5-7	4	10.0
6-8	4	10.0
8-10	4	10.0
10-12	3	7.5
12-14	3	7.5
16-20	1	2.5

20-22	3	7.5
22-24	1	2.5

Fig :10 showing pus cells before treatment

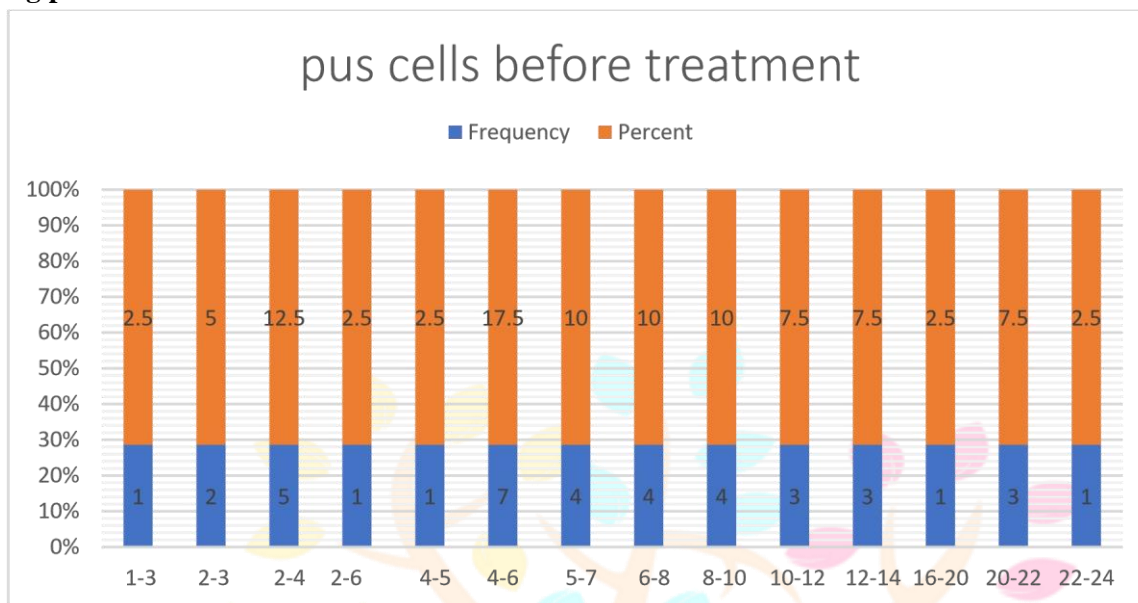


Table: Pus cells After treatment.

Pus cells	Frequency	Percentage
1-2	14	35%
2-3	6	15%
2-4	6	15%
2-6	1	2.5%
4-5	1	2.5%
4-6	3	7.5%
6-8	1	2.5%
6-10	2	5%
8-10	3	7.5%
10-16	1	2.5%
16-18	2	5.0%

Fig 11 : showing pus cells after treatment

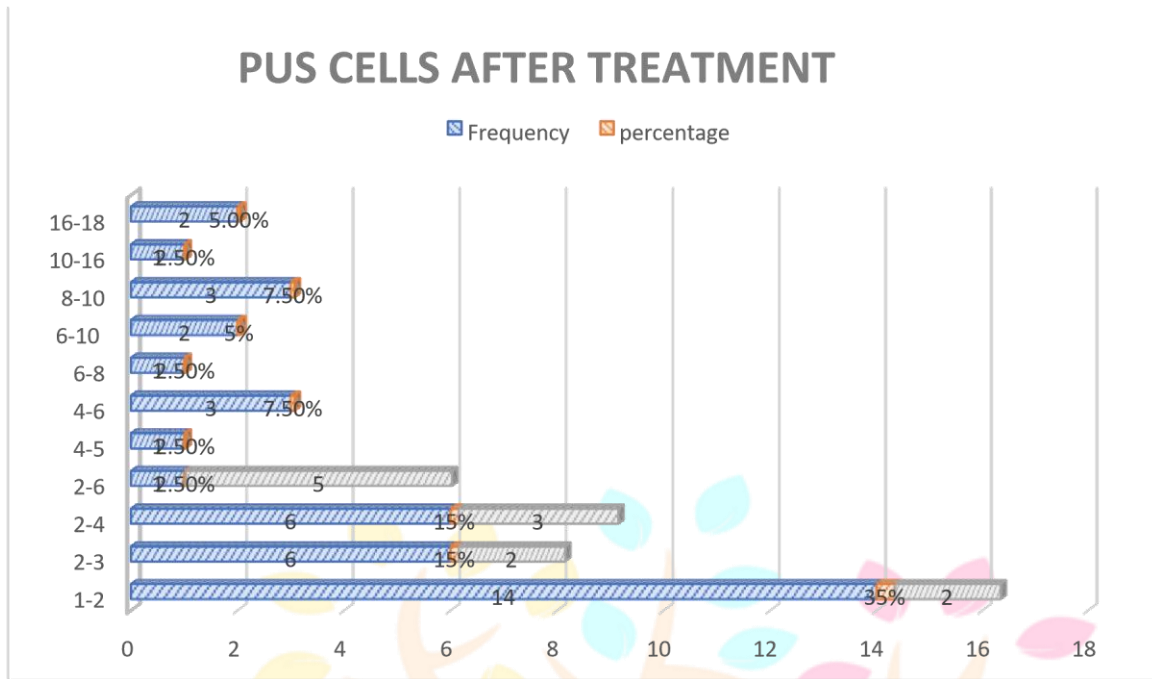


Table : Urine culture before treatment

ORGANISM	FREQUENCY	PERCENTAGE
E.coli	18	45%
Enterbacter	6	15%
Enterococcus	1	2.5%
Klebsella pneumonia	4	10%
Klebsella aerogenis	1	2.5%
Proteus	4	10%
Staphylococcus aureus	4	10%
Streptococcus	2	5%

Fig : urine culture BT

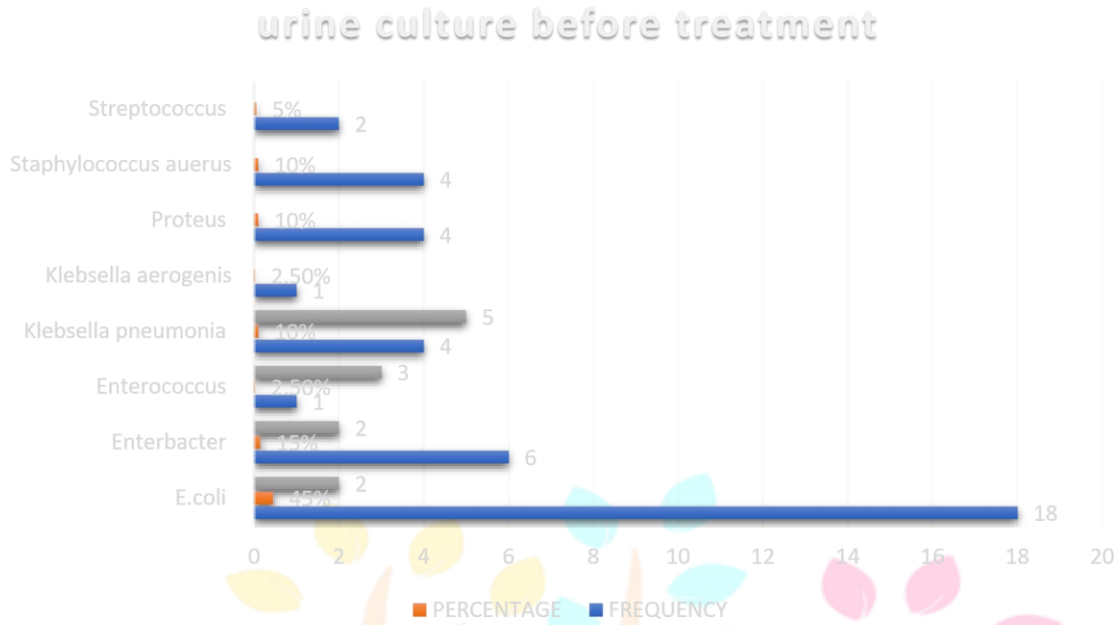


Table : Urine culture after treatment

ORGANISM	FREQUENCY	PERCENTAGE
No growth	27	67.5%
E.coli	5	12.5%
Klebsella pneumonia	3	7.5%
Proteus	2	5%
Streptococcus	1	2.5%
Staphylococcus aureus	2	5%

Fig : urine culture AT

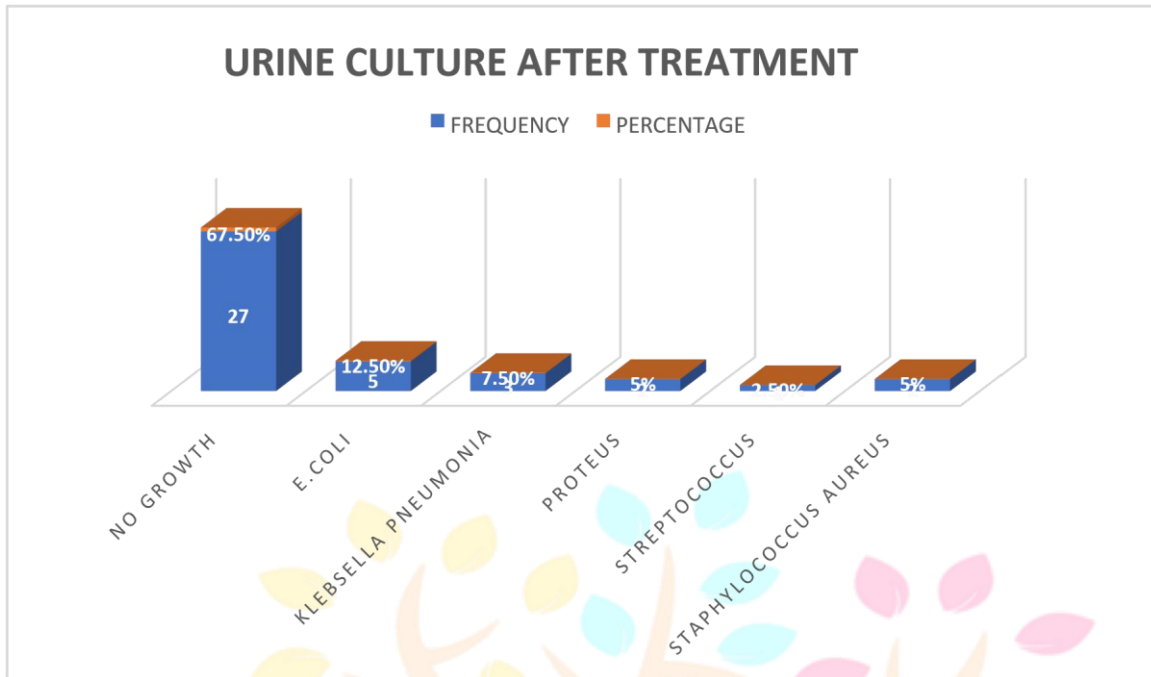


Table : Statistical values of pus cells

Pus cells	Chi square value	pvalue
Bt	166.8	<0.016
At	103.4	<0.958

Fig : statistical values of pus cells

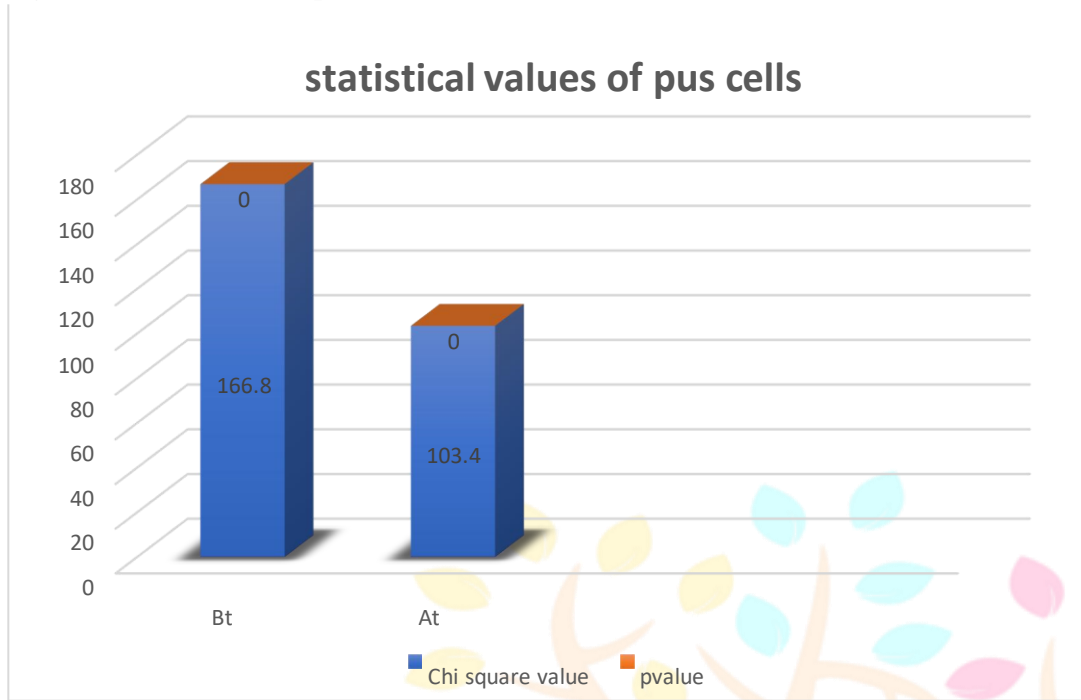
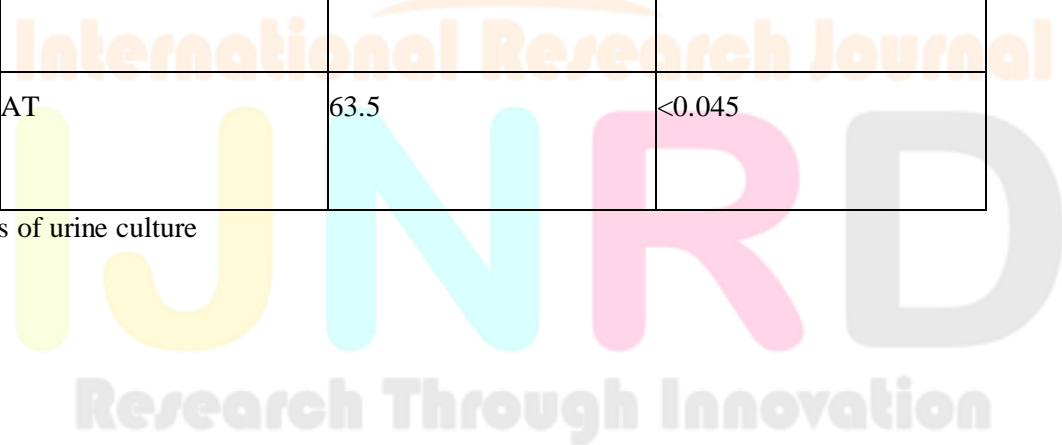
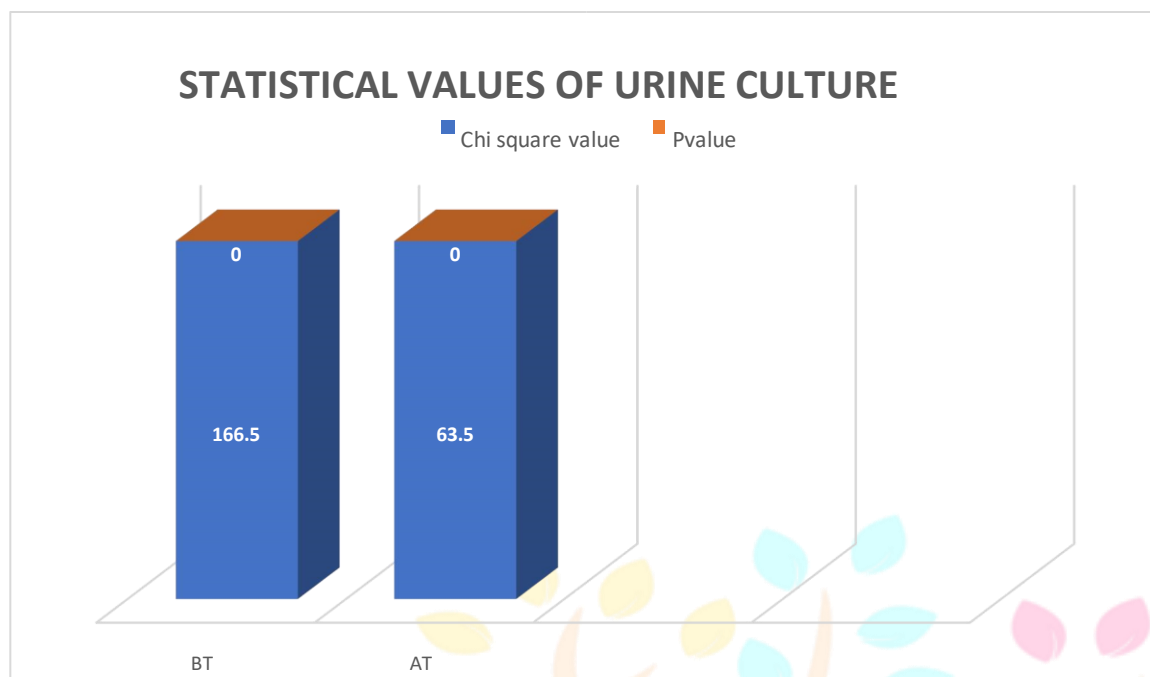


Table Statistical values of urine culture

Organism	Chi square value	Pvalue
BT	166.5	<0.000
AT	63.5	<0.045

Fig : statistical values of urine culture





Distribution of table according to response

Response	Good	Satisfactory	poor	No response
	21 (52.5%)	06 (15%)	03 (7.5%)	10 (25%)

13. Conclusion And Summary

Recurrent uti is one of the most common frequent bacterial infection accounting for 25% of all infections affecting the urinary system including the kidney, ureters bladder and urethra. It is more common in women with recurrence rate of 25 – 50%.

In modern system of medicine, treatment is available for rUti but due to increased and extensive use of antibiotics has resulted in the emergence of antibiotic resistant bacterial pathogens and adverse effects of repetitive antimicrobial therapy. So the complementary and alternative medicine specially unani medicines has been recognized as a effective approach for the treatment of infection. On the other side the unani drugs are less costly, safe and mostly effective.

A single blind clinical trial to evaluate the safety and efficacy of unani drugs in the management of ruti with sample size of 40 patients randomly allocated by lottery method in a single group from out patient department of Govt Nizamia General hospital after ethical clearance with prior informed consent of the patients .

The drugs selected for the study is kharkhask (Tribulus Terrestris) kulthi (dolichos Bilforis) 5gms each in the form of decoction (Joshanda) 150ml BD before meals and Juft e balook (Quercus incona); shor e khalmi (potassium nitrate); Ushba Desi (Hemidesmus indicus) chobchini (smilax china); Gajga (caesalpinia Bonducella) 1 gm each in the form of sufoof (powder) 5gm BD after food.

The duration of study was 45 days with regular follow up of 15 days each. all the patients were kept under strict observation and assessment of the efficacy of treatment were carried out on the basis of change in clinical symptoms and investigation result before and after treatment.

The protocol for the ethical clearance was approved by the institutional ethical committee cases were selected on the basis of inclusion, exclusion and diagnostic criteria in the research protocol. The duration of protocol was 45 days. total 40 patients were randomly collected in a single group.

Summary of demographic data for effect of treatment.

- Maximum number of patients was belonging to age group 21 – 30 i.e 17 with 42.5%.
- Maximum number of patients were females 27(67.5%)
- Maximum number of patients were of damvi 18 (45%) cases and safravi 13(32.5%).
- Maximum number of patients were married 26(62%)
- Highest prevalence of rUti was seen in middle class patients i.e 34(75%)
- Out of 40 cases of ruti 33(82.5%) were seen in muslims as the study was taken in muslim dominated area.
- Maximum number of patients have 2 uti in past 21(52.5) and 3 uti in past 16(40%).
- According to occupation maximum number of patients were students i.e 13(32.5%), housewives 10 (25%)
- .
- Maximum number of patients had
 - A. Suprapubic pain
 - B. Burning micturition
 - C. Frequency of micturition
 - D. Dysuria

Investigations were conducted in almost all cases common pathogen found in urine culture is E.coli.

Most of the patients have pus cells in urine and positive bacterial culture.

According to objective parameters the distribution of pus cells in table 1 before treatment was high where as in table 2 showing the distribution of pus cells after treatment get reduced.

According to distribution of organism isolated in urine culture before treatment in table 1 . the frequency highest is E.coli i.e 18 with 45% followed by Enterobacter i.e 6 with 15% klebsells pneumonia 4 (10%); proteus 4 (10%) staphylococcus aureus 4(10%); streptococcus 2 (5%) and enterococcus 1(2.5%).

Distribution of organism isolated in urine culture after treatment the frequency of no growth is highest i.e 27(67.5%) and the frequency of E.coli get reduced to 5 i.e 12.5% and klebsella pneumonia is reduced to 3 with 7.5% proteus and staphylococcus is reduced to 2 with 5.0% respectively.

No adverse effect were noted during treatment and follow up period .

The response of treatment was categorized as good response ; satisfactory response; poor response ; no response therapeutic response of 40 patients showed that out of 40 patients. 21(52.5%) received good response ; 6(15%) received satisfactory response ; 03(7.5%) received poor response 10 (25%) received no response.It is evident that all clinical symptoms and signs were highly significant with $p < 0.05$.

At the end of the study, statistically significance of result was noted.it was concluded that efficacy of unani medicines on ruti was found clinically statistically significance and are safe & effective.

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