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A clinical research study to assess the efficacy of homoeopathic remedies in treating urinary tract infection of diabetic females

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Abstract
A urinary tract infection is indicated by the presence of more than 100,000 (>10^5) organisms per milliliter in the blood sample that is being used. Urinary tract infections are linked to the growth of organisms in the urinary system. We refer to this as substantial bacteriuria [1]. A considerable percentage of women, almost 50%, report having experienced recurring urinary tract infections after at least one episode of illness [2]. The most significant infection location in patients with diabetes is the urinary tract. Uncontrolled diabetes increases the risk of developing a urinary tract infection [3]. The purpose of this study is to identify the underlying causes of urinary tract infections in female diabetics as well as the function of homoeopathic treatments in treating these infections.

Keywords: Urinary tract infection, diabetes mellitus, bacteriuria, homoeopathy.

Introduction
Urinary tract infections are a frequent, upsetting, and even fatal illness. Occur in females of all ages, in individuals with urinary tract anomalies both structurally and functionally, and in some conditions that have been added to pre-existing medical conditions. The clinical manifestation might vary from asymptomatic bacteriuria to severe pyelonephritis. Compared to women without diabetes, postmenopausal women with diabetes had greater rates of urinary tract infections. Uncontrolled diabetes increases the risk of urinary tract infections.

Organisms commonly causing uncomplicated urinary tract infection
- *Escherichia* coli
- *Klebsiella pneumoniae*
- *Proteus* spp.
- *Pseudomonas* spp.
- *Enterococcus* spp.
- *Staphylococcus* saprophytic us (in sexually active women and girls) [2]

Organisms causing urinary tract infection in domiciliary practice [4]

Organism	Approximate frequency (%)
Escherichia coli	65.1
Other coliforms	23.4
Proteus and *Morganella* spp.	4.6
Enterococci	2.4
Pseudomonas spp.	1.8
Coagulase-negative staphylococci	1.5
Group B streptococci	0.7
Staphylococcus aureus	0.5

Escherichia coli
- Causes ~ 80% of acute infections (both cystitis and pyelonephritis) in patients without catheters, urologic abnormalities, or calculi [5].

There are two types of *E. coli*
- Those with type 1 fimbriae (with adhesin known as FimH) associated with cystitis.

- Those with type P fimbriae (with adhesin known as PapG) commonly responsible for pyelonephritis [6].
- The urothelium of susceptible persons may have more receptors to which virulent strains of E. coli become adherent [4].

***Klebsiella* spp**
- Predispose to stone formation and are isolated more frequently from patients with calculi.
- Klebsiella species and certain Gram-negative non-fermenting bacteria are encountered in hospital-acquired infections [7]. Klebsiella pneumonia usually in mixed infections and when there structural deformities of the urinary tract [8].

The proteus
- Group of organisms are commonly seen in the presence of calculus disease [7].

***Pseudomonas* spp**
- Assume increasing importance in recurrent infections and in infections associated with urologic manipulation, calculi, or obstruction. They play a major role in nosocomial, catheter associated infections [9].

***Pseudomonas* aeruginosa**
- Is seen following catheterisation or instrumentation of the urinary tract in hospitals [7].

***Pseudomonas* pyocyanea**
- Frequently after antibiotic therapy and indwelling catheter [8].
- Gram-positive cocci play a lesser role in Urinary tract infection's

Enterococci
- Occasionally cause acute uncomplicated cystitis in women [9].

Enterococci and *Staphylococcus* aureus
- More commonly cause infections in patients with renal stones or with previous instrumentation or surgery [10].

***Staphylococcus* aureus**
- Occasionally found in structurally abnormal urinary tract [6].

***Staphylococcus* saprophyticus**
- Accounts for 10-15% of acute symptomatic UTIs in young female patients [11].

Streptococcus saprophyticus
- Causes up to 35% of all urinary infections.it is the second commonest urinary pathogen in young women15-30%, and infection with *Staphylococcus* aureus also occur [9].
- Isolation of *S. aureus* from the urine should arouse suspicion of bacteremic infection of the kidney [12].
- *Staphylococcus* epidermidis is a common cause of catheter-associated Urinary tract infection.

Ureaplasma urealyticum
- Has frequently been isolated from the urethra and urine of patients with acute dysuria and frequency but is also found in specimens from many patients without urinary symptoms [6].

Ureaplasmas and Mycoplasma
- Genitalium probably account for some cases of urethritis and cystitis
- Some nonbacterial organisms can also cause Urinary tract infection in special situations [7].
- Colonization of the urine of catheterized or diabetic patients by Candida and other fungal species is common and sometimes progresses to symptomatic invasive infection.
- Chlamydia trachomatis and Mycoplasma hominis May cause the urethral syndrome [6].

Predisposing Factors

Stagnant urine

For many organisms, urine is the ideal growth medium. These organisms will reproduce quickly at room temperature if they happen to come into contact with a pool of urine that hasn't been fully drained from the urinary system. These stagnant pools can occur in four different ways.

Too frequent voiding

Many women's get into a habit of voiding their bladders only once or twice per day. By 12 hours a single microorganism that can gains entry to the bladder may have multiplied to several million.

Mechanical obstruction to urinary tract

Results in deficient evacuating out of the bladder, ureters or kidney.it forms a major part of routine urological surgery. this donation can be seen in Hydronephrosis from inhibition are pelvic ureteric junction, in dilatation of from inhibition by a gravestone, and in exodus inhibition to the bladder from prostatic hypertrophy or a stricture in the urethra.

Undrained pockets of urine

These do veritably generally in the inhibition bladder where they're called diverticula; but they're also set up in order and in numerous other situations where corridor of urinary tract gets filled with urine that doesn't empty out fully.

Dilated refluxing ureters-mega ureter

The cause is inhibition at the lower end, and in others there's free influx of urine from the bladder up the ureter towards the kidney.in any event once the system is invested with microorganisms, the urine runs up the ureter in influx, or remain in it when ureter is dammed allowing organisms to breed.

Foreign bodies and hiding places for organisms

The most common caching place for organisms are monuments. They're generally crumbly and pervious and in between the little collections of chargers there's plenitude of room for urine to enter and for organisms to hide. Hence one veritably frequently finds a gravestone sheltering organisms time after time, guarding them from antibiotics that might diffuse some way into the gravestone but no way in high enough attention to kill off all inner most microorganisms.

Lowered resistance to infection

Infection is much more apt to attack tissues that have

already been damaged.

Pathogenesis

Mode of entry of bacteria into genitourinary tract cannot be always traced with certainty. There are 4 major pathways.

Ascending infection

- Female urethra is short and there is tendency for rectal bacteria to colonize the perineum and vaginal vestibule.
- Females are more susceptible to ascending urinary tract infection.
- Sexual intercourse and child bearing enhance the susceptibility of women to urinary tract infection [12].
- Bacteria gain access to the bladder via the urethra.
- Ascent of bacteria from the bladder may follow and is probably the pathway for most renal parenchymal infections [6].

Mechanisms allowing ascent of infection up the urinary tract

The capability of a bacterium to populate the gut and periurethral mucosa, and latterly to cleave to the uroepithelium, is a major determinant of its capability to beget clinical infection, particularly if other host defences are complete.

This capability to cleave is governed by specific interaction between bacterial adhesions, located on the tips of thin fibres with genetically determined glycoproteins on the cell face of the host cell. Type 1 fimbrias bind to mannose containing glycoproteins that are present on the face of uroepithelial cells, but also to Tamm Horsfall protein, which is present in urine and can competitively inhibit list of bacteria to cell face glycoproteins. Type P pili bind the ŧgalactosyl-1,4-ŧgalactose disaccharide sequence present in some glycoproteins and glycosphingolipids, including the mortal P blood group antigen system and also on the cell face of uroepithelial cells as well as red cells.

Some uropathogens are particularly acclimated to populating foreign shells, particularly those carpeted by biofilm or mucin; for illustration, Proteus spp. are suitable to transfigure into a swarming phenotype with massive flagellas, organize into rafts, and move veritably fleetly against the inflow of urine they're thus important causes of infection in cases with indwelling urinary catheters and those with ileal conduits.

Following adherence, fimbriae appear to repudiate, drawing the organism closer to the face of the uroepithelial cell. Adherence is followed by apoptosis, exfoliation, and excretion of infected superficial cells and relief by lower discerned cells, a process that may also contribute to host defence.

Bacterial adherence results in the original product of interleukin 8, which results in neutrophil migration through the uroepithelium into the bladder. Seditious cytokine release may also be promoted by answerable bacterial stimulants, similar as lipopolysaccharide

Hematogenous spread

Infection of the genitourinary tract by hematogenous spread is uncommon, notable exceptions being tuberculosis, renal abscess and perinephric abscess.

Again, bacteria frequently enter the bloodstream in the course of acute infections of the order and prostate. Bacteremia more likely to complicate urinary tract infection when structural and functional abnormalities live. Than when the urinary tract is normal.

Lymphatogenous spread

Infection of the genitourinary tract by means of lymphatic channels presumably occurs. But this is rare. Only little evidence is available that bacterial pathogens travels through the rectal and colonic lymphatics to the prostate and bladder and through the periuterine lymphatics to womanish genito urinary tract.

Direct extension from another organ

Intraperitoneal abscess, especially those associated with inflammatory bowel disease, fulminant pelvic inflammatory disease in women, paravesical abscess and genitourinary tract fistulas can infect the urinary tract by means of direct extension.

Conditions affecting pathogenesis

- Gender.
- Sexual Activity.
- UTIs are detected in 2-8% of pregnant women.
- Obstruction.
- Neurogenic Bladder Dysfunction.
- Vesicoureteral Reflux.
- Bacterial Virulence Factors.
- Genetic Factors.

Classification of urinary tract infection [12]

New classification of urinary tract infection [12]

The use of terms similar as habitual infection and relapsing infection has led to confusion. For this reason stamley has suggested a new classification.

This classification is useful in tracing the natural history of urinary tract infection for individual patients. It also enhances individual clinical operation.

First infection

For any individual first proved urinary tract infection from a remedial stage point, all infections later fall within one of the other orders of this classification. First infection in youthful women tends to be uncomplicated, lower than a third will reoccur in the icing 18 months. (12)

Unresolved bacteriuria

Those cases of urinary tract infection in which the urinary tract is not actually castrated during remedy. Culture attained during remedy or incontinently after remedy show that the infecting pathogen was not completely excluded by remedy. The main cause of undetermined bacteriuria is Bacterial resistance to medicine named for treatment, Case resistance in taking drug Rapid development of resistance by originally sensitive bacteria, mixed infection with bacterial strains having different anti-microbial vulnerability.

Bacterial persistence

Those cases of urinary tract infection in which the culture come sterile during remedy but patient source of infection in contact with urine and urinary tract is not castrated with attendant reinfection of urine by the same organisms

Reinfection

Those cases of urinary tract infection in which a new infection occurs With new pathogens at variable intervals

after a former infection has been eradicated.it is likely that at least 80 of all intermittent urinary infection are reinfections, presumably secondary to altered host defences.

Anatomical classification

Acute infection of urinary tract fall into two general anatomical categories

- Upper urinary tract infection (acute pyelonephritis, cystitis).
- Lower urinary tract infection (urethritis, prostatitis, intrarenal and perinephric abscess [6].

Uncomplicated and complicated infections

- **Uncomplicated Urinary tract infection:** Occur in healthy women.
- **Complicated Urinary tract infection:** Is associated with anatomical, functional, or metabolic abnormalities of urinary tract that disable the natural innate host defences and lead to tissue injury [13].

Clinical features of urinary tract infection

Classic symptoms include [11]

- Severe Dysuria often described as scorching or like peeing barbed wire, worse towards the end or immediately after micturition, scalding pain in the urethra during micturition [4].
- Increased Urinary Frequency, including nocturia which helps to distinguish cystitis from other causes of daytime frequency.
- Urgency the feeling of having to pass urine straight away to avoid incontinence Urge incontinence leakage of urine associated with the desire to pass urine.
- Strangury the feeling of needing to pass urine.
- Haematuria particularly in women under 50, less commonly in girls or older women; Constant Lower Abdominal Aching,
- Present with minimal or no symptoms or may be associated with atypical symptoms such as abdominal pain, fever or haematuria in the absence of frequency or dysuria.
- Localization of the site of infection on the basis of symptoms alone is unreliable. Systemic symptoms are usually slight or absent [4].

Clinical spectrum of urinary tract infection

1. Asymptomatic bacteriuria.
2. Acute pyelonephritis.
3. Renal abscess.
4. Acute cystitis.
5. Acute urethritis.
6. Severe infection with gram-negative septicaemia [7].

Asymptomatic bacteriuria

It is a term used to designate the presence of bacteria in significant figures in the urinary tract (growth of bacterial colonies of > 100,000 per ml or further in a lately voided midstream urine sample), without any symptom [6]. Elderly cases with asymptomatic bacteriuria are also at increased threat of death, but this is presumably because bacteriuria is a marker of poorer general health, and antibacterial treatment has not been shown to ameliorate survival in this situation [2].

Acute Pyelonephritis

It is bacterial infection of the renal substance, characterized by fever with adversities, hand pain, puking, with or without symptoms of cystitis. It may be associated with suppuration. [7].

In severe pyelonephritis, fever subsides more sluggishly and may not vanish for several days, indeed after applicable antibiotic treatment has been introduced. Continuity of fever or of symptoms and signs beyond 72 h suggests the need for urologic imaging [6].

Physical Examination

- Besides fever, tachycardia, and generalized muscle tenderness, Physical Examination generally reveals marked tenderness on deep pressure in one or both costovertebral angles or on deep abdominal palpation [14].
- Fever or an elevated C-reactive protein level often accompanies acute pyelonephritis and is found in rare cases of cystitis but also occurs in infections other than pyelonephritis.
- Most patients have significant leukocytosis and bacteria detectable in Gram-stained unspun urine.
- Hematuria may be demonstrated during the acute phase of the disease; if it persists after acute manifestations of infection have subsided, a stone, a tumor, or tuberculosis should be considered [6].

Cystitis

Patients with cystitis generally report dysuria, frequence, urgency, and suprapubic pain. The urine frequently becomes grossly cloudy and funky and is bloody in 30 of cases White cells and bacteria can be detected by examination of unspun urine in utmost cases. Still, some women with cystitis have only 102-104 bacteria per milliliter of urine, and in these cases bacteria cannot be seen in a gram-stained medication of unspun urine.

Physical examination: Generally reveals only tenderness of the urethra or the suprapubic area.

Urethritis

- Urethritis of women with acute dysuria, frequency, and pyuria.
- ~30% have midstream urine cultures with either no growth or insignificant bacterial growth.
- Chlamydial or gonococcal infection should be suspected in women with a gradual onset of illness, no hematuria, no suprapubic pain, and > 7 days of symptoms.

Catheter-associated urinary tract infection

- Bacteriuria develops in at least 10-15% of hospitalized patients with short-term indwelling urethral catheters.
- The risk of infection is 3-5% per day of catheterization.
- E. coli, Proteus, *Pseudomonas*, Klebsiella, Serratia, staphylococci, enterococci, and Candida usually cause these infections.
- Many infecting strains display markedly broader antimicrobial resistance profiles than do organisms that cause community-acquired Urinary tract infections [6].

Complication of urinary tract infection

1. Acute renal failure.
2. Septicaemia.
3. Papillary necrosis and interstitial nephritis.

4. Stone formation.
5. Suppuration.
6. Granuloma.

Diabetes and urinary infection

- Urinary tract is the most important site of infection in diabetic patient.
- Most urinary tract infections in diabetic patients are relatively asymptomatic.
- Rates of urinary tract infection are higher among postmenopausal women with diabetes than among those without diabetes.
- The presence of diabetes predisposes to much more severe infections, especially in patient with poor diabetic control, acute ketoacidosis or diabetic complications such as neuropathy, vasculopathy.
- This asymptomatic infections can lead to severe kidney damage and cause renal failure.
- Factors that predispose diabetic individuals to infection are ill understood.
- Many factors may combine to increase the frequency of infection, including autonomic neuropathy leading to delayed bladder emptying, diabetic neuropathy and impaired host defense mechanism.
- Although definite data are lacking, there is an impression that diabetic patients may be more likely than nondiabetic to suffer renal failure as a result of urinary tract infection and subsequent pyelonephritis and septicemia.
- This may result from failure of autoregulation of renal blood flow with fall in blood pressure in patient with even moderate degree of diabetic neuropathy.
- The increased risk for urinary tract infection was higher for women taking insulin and in those with a longer duration of diabetes [15].
- There is no evidence that diabetes patient with good glycemic control are prone to infection than normal subject.
- Poorly controlled diabetes entail increased susceptibility to urinary tract infection, pyelonephritis & perinephric abscess [14].
- Infections can cause poor diabetes regulation
- Increased secretion of counter insular hormones (glucagon, cortisol, growth hormone and catecholamines).
- Insulin secretion inhibition (sympathicus).
- Insulin resistance of peripheral tissues (increased cytokine secretion) [15].

Assessment criteria for diabetes

Grade	Weakness	Thirst	Urination	Blood Glucose (mg percent)
0	No weakness	Normal thirst	Normal frequency for patient	FBS < 126 PPBS < 140
1	Weakness after hard work	Increased thirst daily and 0-1 at night	Every 5-6 hourly / increased than his/her during day	FBS-127-140 PPBS: 141-130
2	Weakness after daily work	Thirst increased every 3-4 hours hourly/2 times at night	Every 3-4 hours hourly/2 times at night	FBS: 141-180 PPBS: 181-220
3	Persistent weakness	Constantly feeling thirsty during day/more than 2 times at night	Every hourly during day/night >2 times	FBS > 180 PPBS > 220

Limitation of homeopathy in treating urinary tract infection:

In case of the etiological factors or the predisposing factors like on obstructive lesion (For eg: tumor, stricture, stone or prostatic hypertrophy) or any functional disorder like VUR or any neurogenic disorder, surgical intervention is mandatory to remove the minting cause. Hence such cases are beyond our scope.

Miasmatic evaluation

Miasms are the fundamental cause of the disease

They not only produce chronic disease but also predisposes human being to acute disease. From Homoeopathic view point, every disease has a miasmatic background. Majority of UTI manifest itself by acute symptoms. They recur due to the basic miasmatic cause. According to the symptom, miasm may change.

According to Dr. Subrata Kumar Banerjea Psoric phase of UTI: [17]

Retention of urine in children-Fullness of bladder-Sense of constriction-Yellowish or white deposit in urine, phosphates or similar deposits. Nephritis, pyelitis, cystitis and urethritis are psoric in origin because of their infective nature (as all inflammation begins with psora) but strongly sycotic in their manifestations [17].

Smarting and burning in the urinary meatus or in the lumbar area unrelated to any pathological causes might be present.

Sycotic phase of urinary tract infection

- Urinary tract obstruction which is commonly due to a calculi or a tumor or prostatic hypertrophy or a stricture.
- Stitching and pulsating sensations with wandering pains are sycotic.
- Painful spasms affecting urethra and bladder.
- Diabetes and albuminuria are tubercular, yet if the conditions are extremely severe, sycosis may also be present, and they can become trimiasmatic [17].

Tubercular Phase of UTI

- Tubercular miasm or pseudopsora denotes the combination of psora and syphilis.
- Urine is offensive and easily decomposed, musty odour like old hay or foul smelling.
- Diabetic patients are usually strongly tubercular with diathesis strongly marked.
- Aggravation at night.

Syphilitic phase of UTI

Characterised by destruction all over and at all levels. - Stricture of urethra. Fibrous change in the kidney. - All kidney and prostatic symptoms are associated with depression and melancholia. Burning and bursting sensations in the bladder or loin area are syphilitic [17].

Impact of MIASM on diabetes mellitus				
Dominant Miasm	**Psora**	**Sycotic**	**Tubercular**	**Syphilis**
Onset	Rapid	Slow onset at late age	Rapid onset at early age	Silent
Signs and symptoms	Weakness+ Sensation++	Obesity, mild or asymptomatic dyslipidemia	Weakness + Weight loss	Less characteristic pathology
Progress	Normalcy as soon as stress reduced	Gradual complications slow	Infections and fast complications	Complications++ bleeding ulcerations +
Blood glucose level	Rapid rise and fall	Less fluctuations	Wide erratic fluctuations	High

Aim and objective

- To study the fundamental causes of urinary tract infection in diabetic female.
- To study the role of homoeopathic remedies in urinary tract infection.
- To study the past literatures of urinary tract infection in diabetic female

Materials and Methods

Source of the data

The material for the study was collected from Inpatient and outpatient department of Vinayaka Missions Homoeopathic Medical College and Hospital and from Peripheral Centers & Medical Camps conducted by the college.

Method of collection of the data

Inclusion and Exclusion criteria were fixed

Inclusion Criteria: Patients of All ages, Female patients with Diabetes Mellitus

Exclusion Criteria: Male patients, Patients of any systemic illness

- Cases were selected according to the Inclusion and Exclusion criteria
- History and clinical symptoms of every case were taken.
- General physical examination and systemic examination were done.
- Required investigations were done.

Treatment Plan

The patient's symptoms were analysed and evaluated according to Dr. JT Kent's method. Totality was formed on the basis of Homoeopathic concept. A detailed history was taken in all cases as per Performa. Repertorization was done using Synthesis repertory. Mental generals, physical generals and characteristic particulars were considered for the selection of the remedy. The approach in each case was based on totality of symptoms. Acute remedies constitutional drugs, intercurrent remedies are given when required depending on case. The cases were given indicated medicines in 30, 200,1M potencies Criteria for follow up were mental generals, physical generals and characteristic particulars Prognosis was evaluated according to the symptomatic relief and based on the prognostic criteria.

Observation and results table

Table 1: Distribution of the cases according to the age of the patient

S. No	Age Group (In Years)	Number of Patients	Percentage
1	45-50	06	20%
2	51-55	08	26.67%
3	56-60	09	30%
4	61-65	05	16.67%
5	66-70	02	6.67%

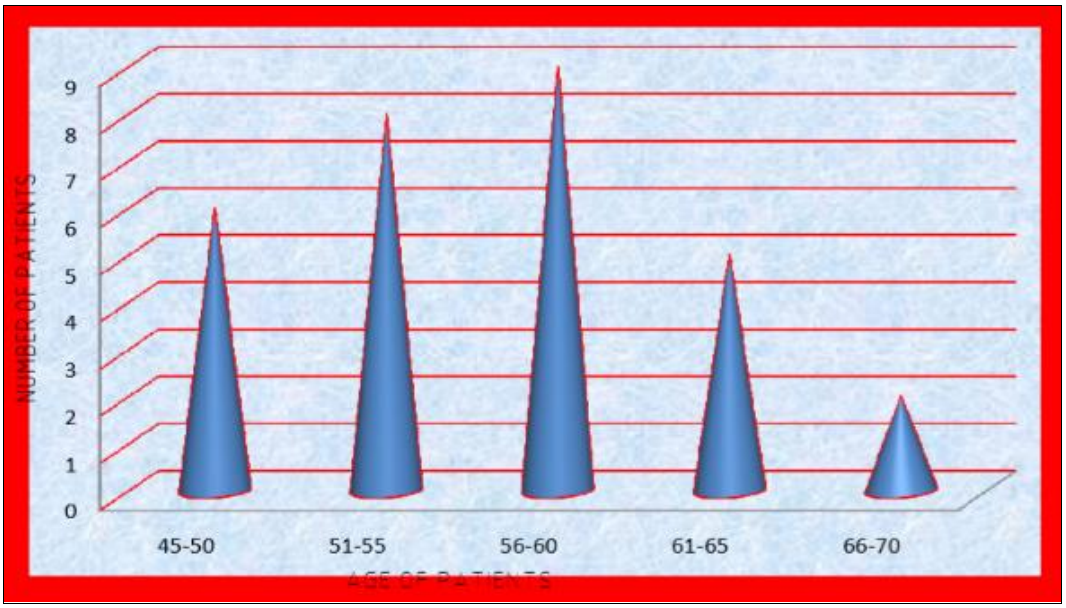

Chart 1: Distribution of the cases according to the age

The commonly affected patients were 20% between ages of 45-50 years. 26.67% between ages of 51-55 years. 30% between ages of 56-60 years. 16.67% between ages of 61-65years. 6% between ages of 66-70 years. The commonly affected age group according to my study was 56-60 years.

Table 2: Distribution of the cases according to the occupation of patient

S. No	Occupation	Number of Patients	Percentage
1	House-wives	23	76.66%
2	Weavers	03	10%
3	Tailors	01	3.33%
4	Hotel worker	01	3.33%
5	Sweeper	01	3.33%
6	Hostel warden	01	3.33%

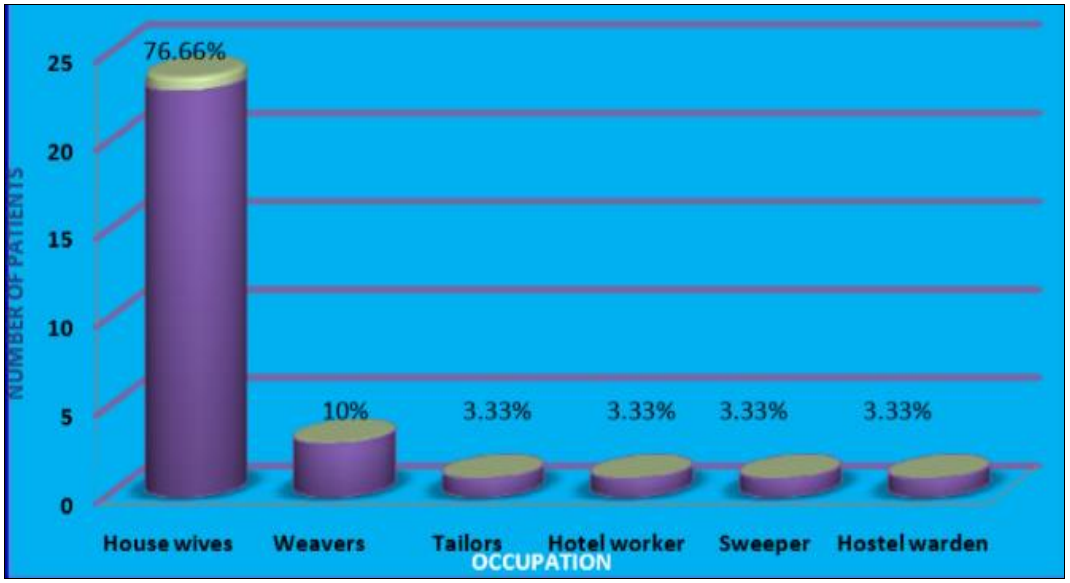

Chart 2: Occupational distribution

Out of these patients 76.66% were house wife, 10% were weavers & 3.33% were tailor, 3.33% were hotel worker, 3.33% were sweeper,3.33% were hostel warden.

Table 3: Distribution of family history of diabetes mellitus in the patients

S. No	Family history	Number of Patients	Percentage
1	Percent	18	60%
2	Absent	12	40%

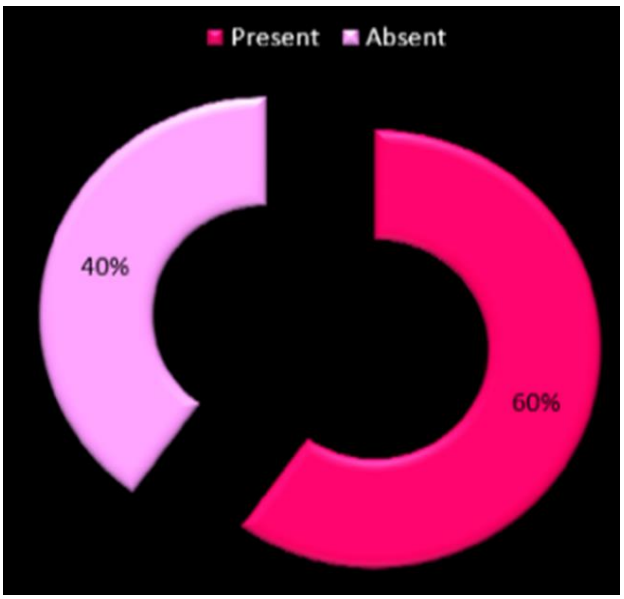

Chart 3: Distribution of family history of diabetes mellitus

In my study 18 patients (60%) have family history of diabetes mellitus. and 12 patients (40%) do not have family history of diabetes mellitus.

Table 4: Distribution of the cases according to the causative organism of urinary tract infection

S. No	Causative Organism	Number of Patients	Percentage
1	*Escherichia* Coli	23	76.66%
2	Klebsiella	07	23.33%

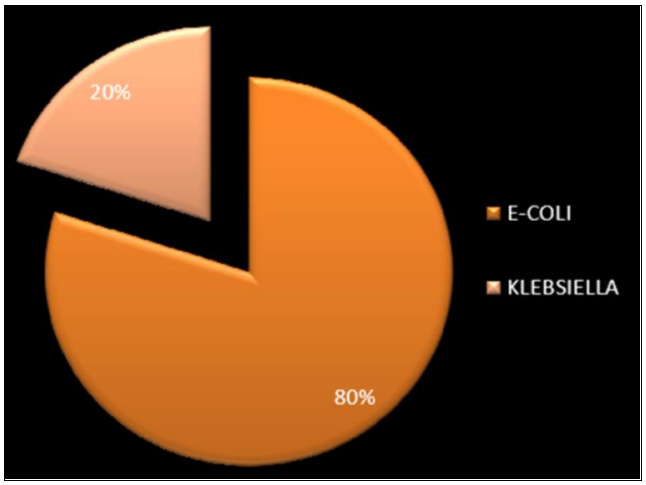

Chart 4: Causative Organism Distribution

E Coli is the causative organism of urinary infection in 23 patients (76.66%). Klebsiella is causative organism for 7 patients (23.33%).

Table 5: Distribution of the cases according to the fundamental MIASM

Fundamental MIASM	Number of Patients	Percentage
Psora	3	10%
Sycotic	22	73.33
Syphilis	5	16.66
Syco Syphilis	1	3.33%

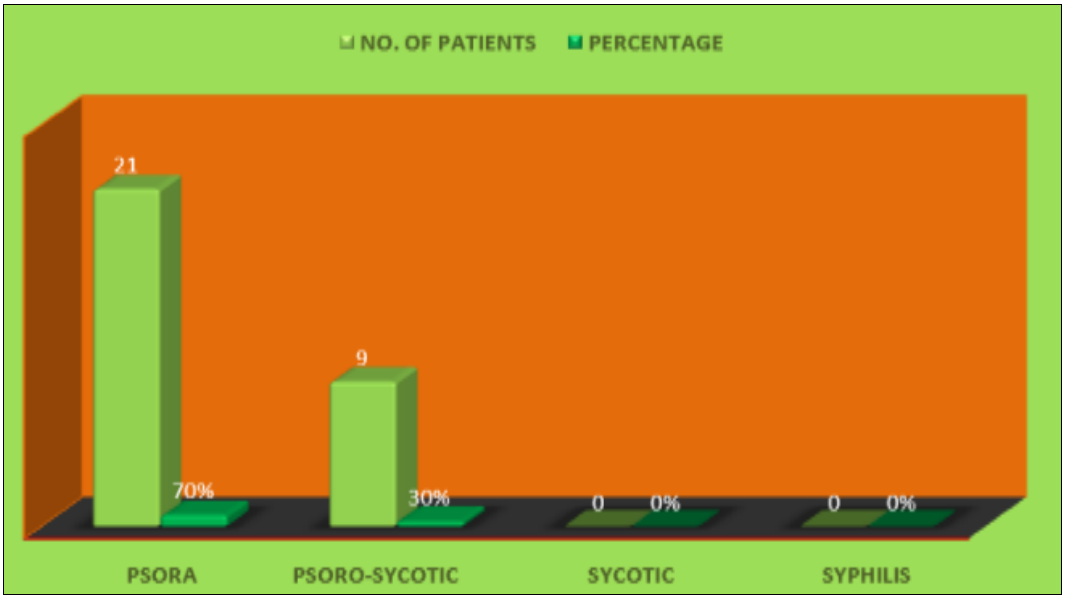

Chart 5: Distribution of Fundamental MIASM

In my study, the distributions of Fundamental miasm among the patients are as follows: Psora in 3 cases (10%), Sycotic in 22 cases (73.33%), syphilis in 5 cases (16.66%), syco syphilis in 1 case (3.33%)

Table 6: Distribution of the cases according to the dominant MIASM

Dominant MIASM	Number of Patients	Percentage
Psora	21	70%
Psora-Sycotic	09	30%
Sycotic	0	0%
Syphilis	0	0%
Syco Syphilis	0	0%
Tubercular	0	0%
Mixed	0	0%

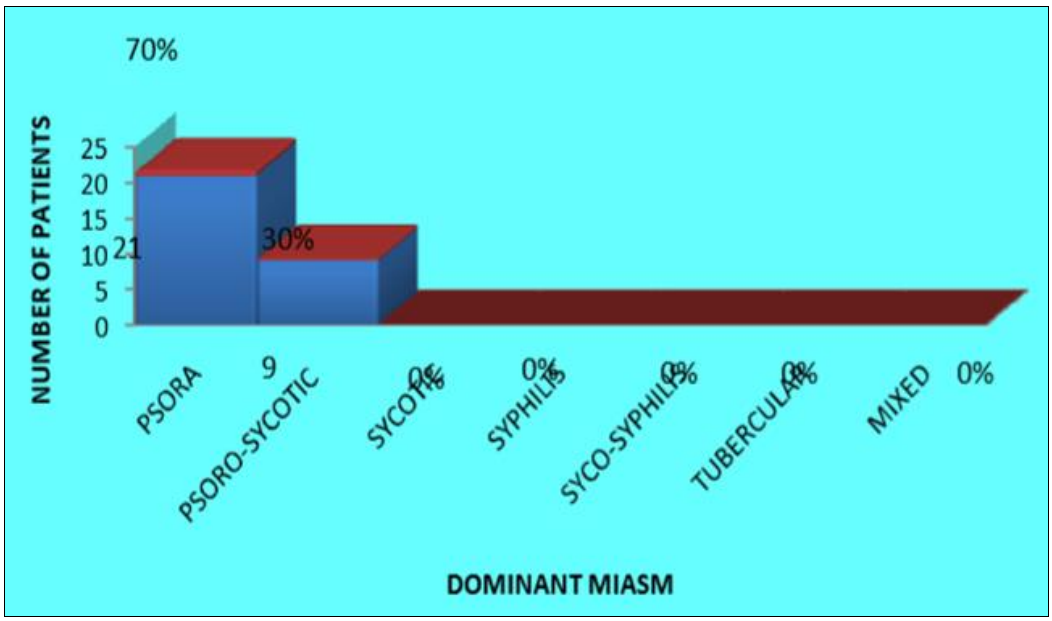

Chart 5: Distribution of Dominant MIASM

In my study, the distribution of Dominant miasm among the patients are as follows: psora in 21 cases (70%). psora - Sycotic in 9 cases (30%).

Table 7: Distribution of acute remedies prescribed (N=30)

S. No.	Acute Remedies	Number of Patients	Percentage
1	Cantharis	7	23.33%
2	Nitric Acid	3	10%
3	Nux Vomica	3	10%
4	Apis Mellifica	4	13.33%
5	Thuia	1	3%
6	Sulphur	1	3%
7	Beriberis Vulgaris	1	3%
8	Sarasaparilla	1	3%
9	Sepla	1	3%
10	Arsenicum Album	1	3%
11	Not Used	7	23.33%

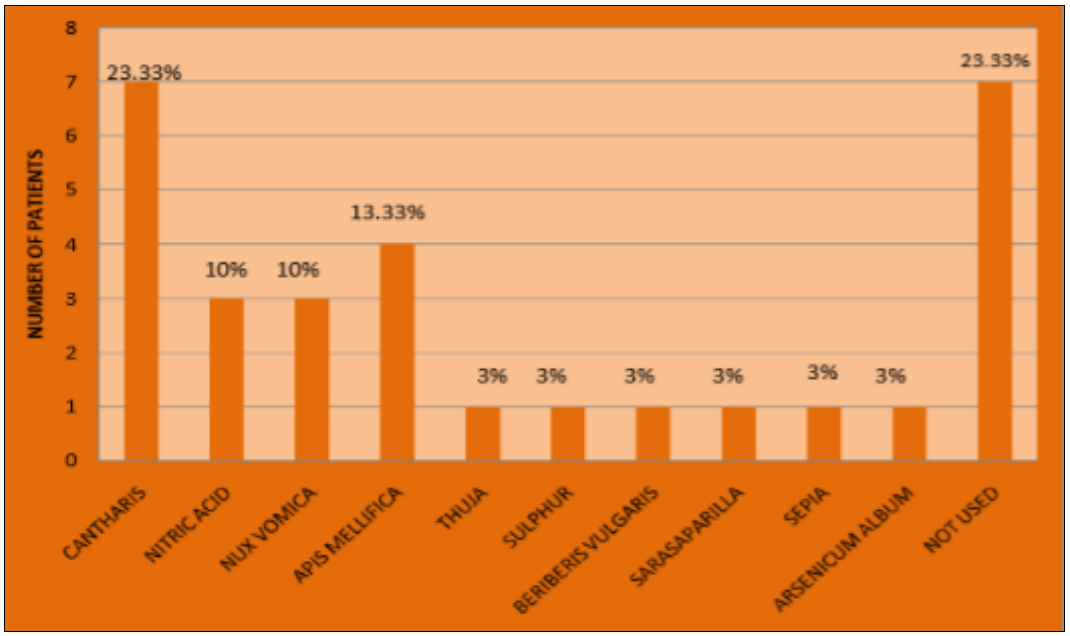

Chart 7: Distribution of acute remedies

In my study commonly prescribed acute remedies are cantharis in 7 patients (23.33%). *Apismellifica* in 4 cases (13.33%). Nux Vomica & Nitric Acid in 3 cases (10%). Thuja, Sulphur, Beriberis, Sarasasparilla, Sepia, Arsenicum Album in 1 case (3%). Cantharis, *apis mellifica*, nitric acid & nux vomica are most frequently indicated acute remedies.

Table 8: Distribution of constitutional remedies prescribed (N=30)

S. No.	Constitutional remedies	Number of Patients	Percentage
1	phosphorous	5	16.66%
2	Natrum muriaticum	2	6.66%
3	Calc area Carbonicum	1	3.33%
4	Sulphur	5	16.66%
5	Arsenicum album	2	6.66%
6	Sepia	2	6.66%
7	Nux vomica	2	6.66%
8	iycopodium	4	13.33%
9	pulsatilla	3	10%
10	Thuja occidentalis	1	3.33%
11	mercurious	2	6.66%

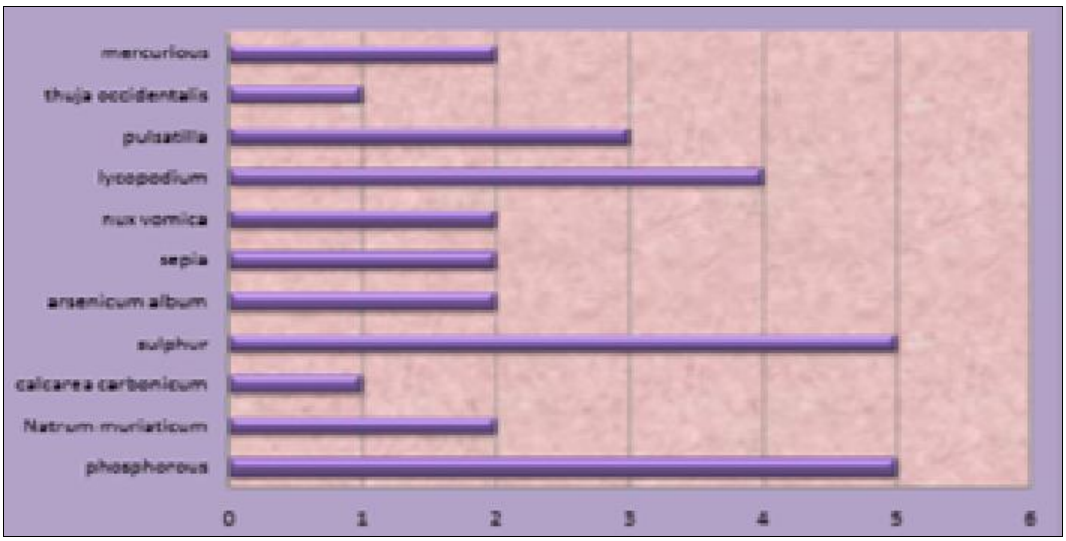

Chart 8: Constitutional remedies used

The commonly prescribed Constitutional remedies are as follows: *calcarea* carb and thuja in 1case (3.33%). natrummur, *arsenicum* album, nuxvomica, mercurious in 2 cases (6.66%). lycopodium in 4cases (13.33%). Phosphorus & sulphur in 5cases (16.66%). Sulphur, phosphorus and Lycopodium were found to be most frequently indicated constitutional remedies.

Table 9: Distribution of intercurrent remedies prescribed (N=30)

S. No.	Intercurrent Remedies	Number of Patients	Percentage
1	Thuja	6	20%
2	Psorinum	1	3.33%
3	Sulphur	5	16.66%
4	Medorrhinum	4	13.33%
5	Tuberculinum	7	23.33%
6	Not used	7	23.33%

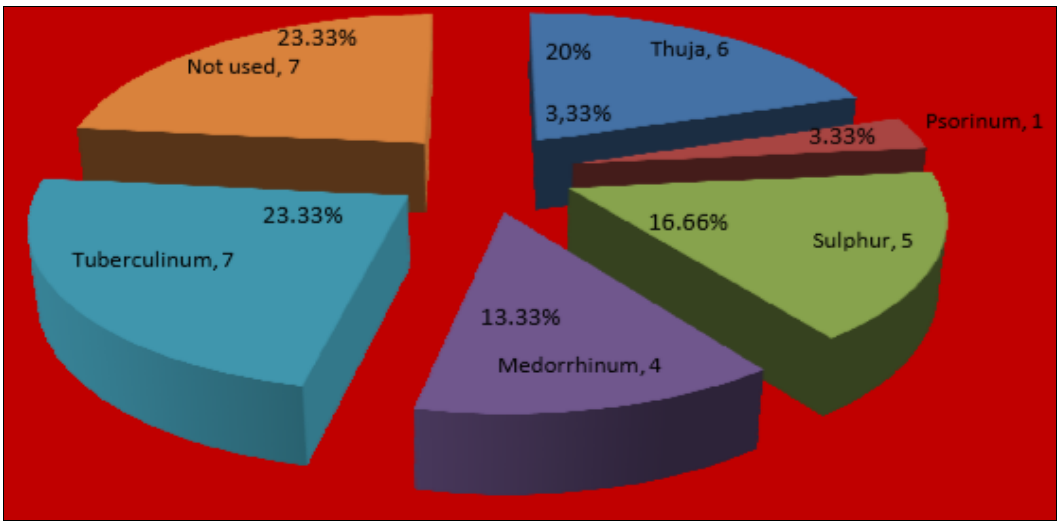

Chart 9: Intercurrent remedies used

The commonly prescribed intercurrent remedies in my study are as follows: Thuja in 6 cases (20%), Psorinum in 1 case (3.33%), Sulphur in 5 cases (16.66%), Medorrhinum in 4 case (13.33%) Tuberculinum in 7 cases (23.33%). Tuberculinum, Thuja, Medorrhinum were the indicated Intercurrent remedies in most cases.

Table 10: Improvement of cases

Result	No. of patients	Percentage
Marked improvement	05	16.66%
Moderate improvement	03	10%
Mild improvement	03	10%
No improvement	0	0%
Recovered	17	56.66%

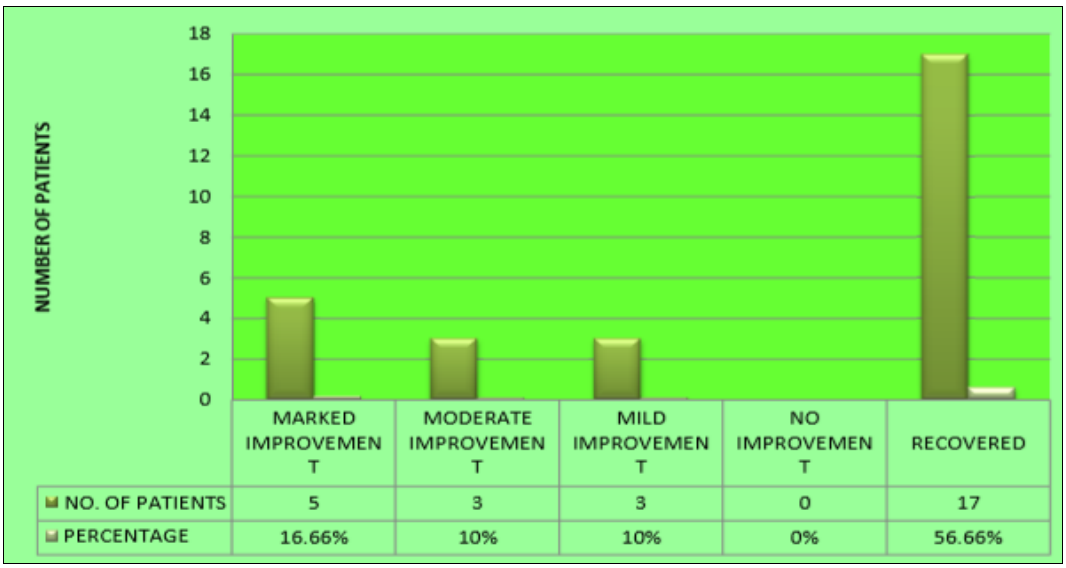

Chart 10: Improvement of cases

In my study, Improvement distribution of the patients based on reports and symptomatic relief 17 cases recovered (56.66%) there is marked improvement in 5 cases (16.66%) moderate improvement in 3 cases (10%) mild improvement in 3 cases (10%). All patients were given medicines based on totality of symptoms.

My study shows, the Homoeopathic medicines are having a good scope in treating urinary tract infection with diabetes mellitus, based on my prognostic criteria as follows

S. No.		Before treatment	After treatment
1.	Urine urgency		
2.	Dysuria		
3.	Frequency		
4.	Offensiveness of urine		
5.	Supra pubic tenderness		
6.	Blood sugar examination		
7.	Urine culture		

This study concludes that Homeopathy is effective in the treatment of urinary tract infection with diabetes mellitus.

Summary and Conclusion

- Thirty clinically diagnosed cases of urinary tract infection with diabetes mellitus were taken into consideration for the study. The patients were between the age group of 45-70 years. Only female Patients were treated. A detailed case history with the proper clinical examination was done in all the patients.
- The commonly affected age group according to my study was 56-60 years. There were no genetic predisposition found in this study for urinary tract infection.
- In my study UTI was significantly high in diabetic patients of the middle socioeconomic status.
- Uncontrolled diabetes mellitus, Bad personal hygiene, Improper micturating habit, are commonest cause for urinary tract infection as per my study.
- Burning urination urgency& frequency were the most common presentation in all cases.
- Psora-Sycotic miasm background and predominance played a dominant role in the occurrence of urinary tract infection in diabetes mellitus.
- Cantharis, *Apis mellifica*, nitric acid & nux vomica are most frequently indicated acute remedies Sulphur, phosphorus and Lycopodium were found to be most frequently indicated constitutional remedies.
- Tuberculinum, Thuja, Medorrhinum were the indicated Intercurrent remedies in most cases.
- Most of the patients got symptomatic relief, as well as general wellbeing.
- My study evidently shows that urinary tract infection with diabetes mellitus can be effectively treated with Homoeopathic medicine

Recommendations

- A similar study on urinary tract infection with diabetes mellitus can be conducted with a large sample. An experimental study can be conducted by using control group and experimental group.
- A study with extended time line can be conducted.

Conflict of Interest

Not available

Financial Support

Not available

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