

## **TITLE**

# **EXPLORING THE ROLE OF HOMOEOPATHY IN THE MANAGEMENT OF ACUTE LOWER URINARY TRACT INFECTION IN PAEDIATRIC AGE GROUP**

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## INTRODUCTION

Normal urine is sterile and has no bacteria in it. But bacteria cover the skin and are found in large numbers in the rectal area and in stools. Bacteria may, at times, travel up the urethra into the bladder. When this happens, the bacteria multiply and, unless the body gets rid of the bacteria, may cause urinary tract infection.

Urinary tract comprises of kidney bladder and urethra.

When this infection is confined to the bladder and urethra it is called lower urinary tract infection.

Urinary tract infection is most of the times a neglected diagnosis due to its vague clinical presentation. Also many a times a child may be infected but will not show any clinical manifestation, this being a main reason for many times urinary tract infection is missed as a diagnosis.

Other difficult issue is a child cannot narrate his suffering so we need to rely purely on mother observation and if mother is very keen observer then that data is reliable enough. These are the issues while management of lower urinary tract infection.

The homeopathic treatment for recurrent UTIs should be designed for each patient individually because each case is very different from that of another person with UTI.

In conventional medicine antibiotics are commonly used to treat recurrent urinary tract infections but they are not always the answer. Antibiotics are often effective in acute UTIs but their long-term use in chronic UTIs rarely prevents recurrences and is usually followed by development of fungal infections and antibiotic resistance.

Homeopathic medicines boost the immune system and enhance resistance to infection. They are effective with no side effects and are safe for children and pregnant women.

Homeopathy also provides a particularly effective treatment for interstitial cystitis, although there is no cure in conventional medicine

## **MATERIALS AND METHODS:**

Study Setting: OPD/IPD and various other peripheral clinics of institute.

Selection of Samples: 30 and decided method of sampling.

Sampling Technique: Simple Random Sampling.

Inclusion Criteria:

- 1) All diagnosed symptomatic or Asymptomatic cases of Acute Lower Urinary tract infection.
- 2) Pediatric age group 3-18 years of age.
- 3) Diagnosed cases of UTI with the help of Urine Routine
- 4) Presence of more than 10 white cells/cu mm in urine microscopy
- 5) Diagnosed with clinical presentations if symptomatic UTI

Exclusion Criteria: 1) any-other infection along with urinary tract infection.

Withdrawal Criteria:-

1. If child will not improve within 72 Hrs they will be withdraw.
2. If child shows signs of septicemia then he/she will be withdraw.

Study Design (Type of Study):

Prospective Study, Experimental Study, Single Blind, Randomized Non- control Trial

Intervention: Homoeopathy Medicine

Selection of tools: RREF & Planning programming, Urine routine.

Brief of procedures:

- The cases will be included as per the inclusion criteria – all age and both the gender will be included
- Cases will be diagnosed through clinical presentation and Urine Routine
- In cases of asymptomatic UTI cases will be included with urine routine showing white blood cells more than 10/cu.mm
- The detailed acute totality will be formulated considering current symptomatology.
- Medicine will be prescribed.
- Progress will be observed on outcome assessment criteria
- Investigation will be repeated

Outcome assessment:

- Outcome will be assessed through Symptomatic improvement and also through urine analysis report.
- Expressions of complications – like septicemia

Data Collection:

Data will be collected as per the format attached in the annexure provided it is been attach.

Statistical Technique: Qualitative data – proportion and mode

Change in Symptomatology – Percentage. If symptoms are graded then Wilcoxon signed rank test

Overall Change before and after treatment considering symptomatic and urine analysis – Chi – Square if not applicable then Percentage.

Data Analysis:

Gender wise proportion of UTI

Type of UTI – Symptomatic and Asymptomatic

Age wise distribution of UTI

Various characteristic symptom present

Pus cell range before and after Rx.

Ethical issues:

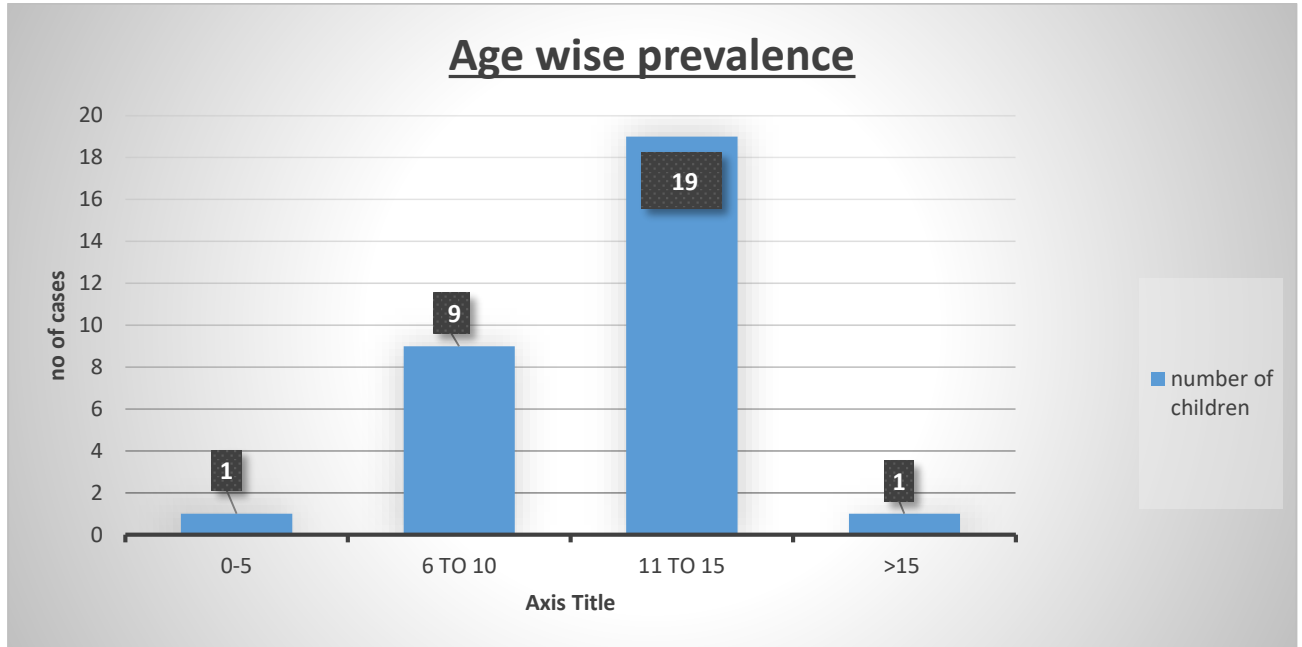
Consent and Assent forms need to be formulate

Catheterization is necessary below age group 2 years hence the 3 years above child to be included in the study

Concession if given for Urine Routine

## OBSERVATIONAL RESULTS AND ANALYSIS

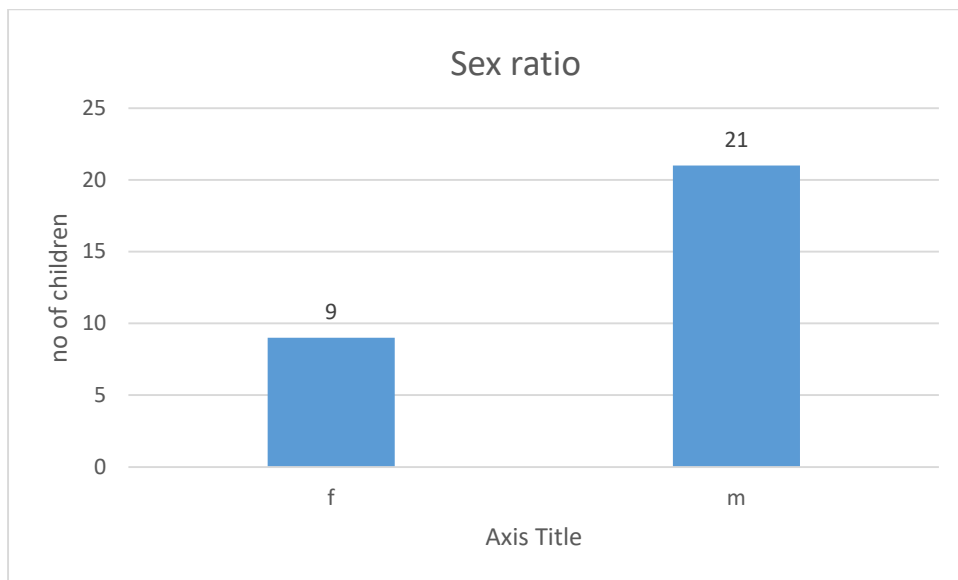
### **1. PREVALENCE OF AGE GROUP (Figure 01)**



#### **Age wise prevalence observed in 30 cases**

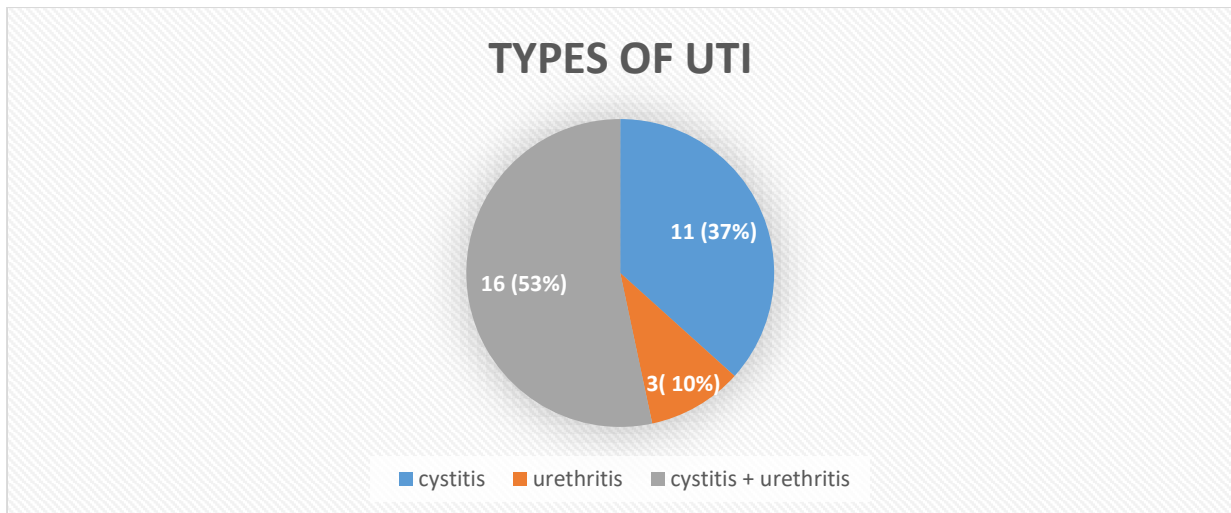
1. Maximum 19 children belonged to age group of 11-15 years
2. 9 children belonged to age of 6-10 years respectively
3. 1 child each belonged to age of 0-5 & >15 years

## 2. PREVALENCE ACCORDING TO GENDER (Figure 02)



**Out of 30 samples studied, in 21 males clinical signs and symptoms of lower urinary tract infection were observed compared to females where this presentation was seen in just 09 females children**

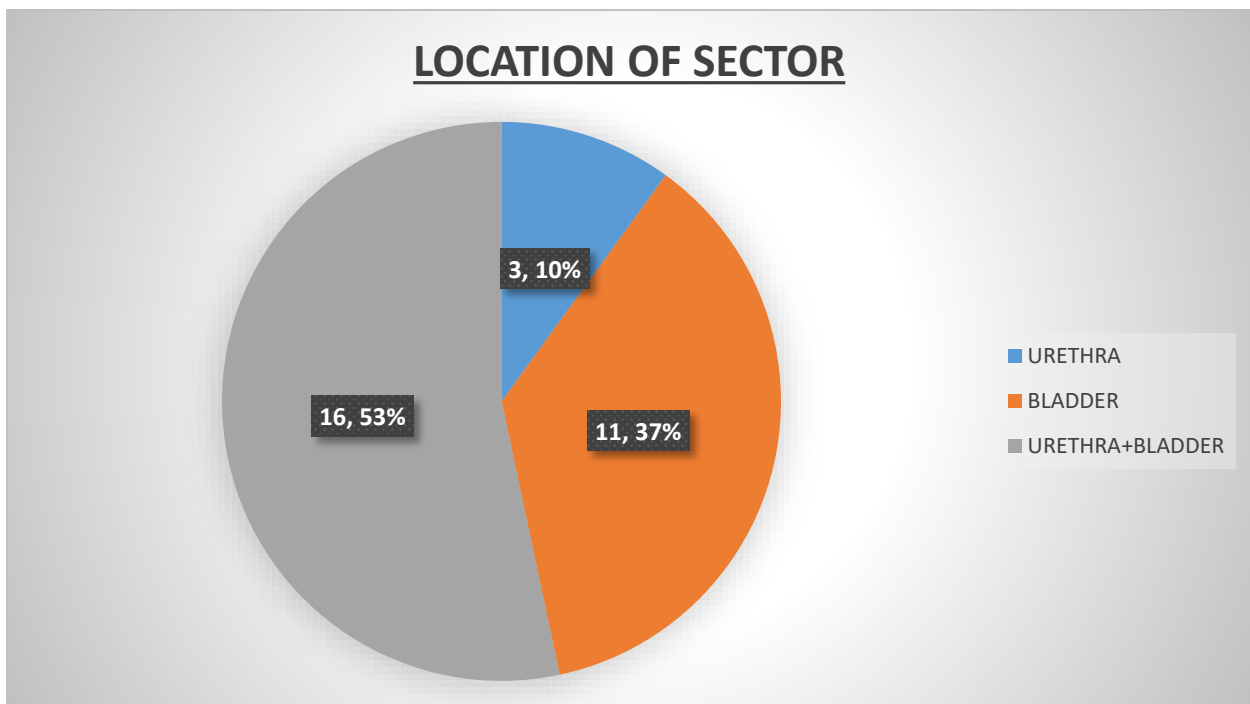
## 3. Prevalence according to diagnosis (Types) (Figure 03)



**Maximum a combination of cystitis and urethritis was observed**

Diagnosis	Number of cases
URETHRITIS	03 (10%)
CYSTITIS	11 (37%)
CYSTITIS + URETHRITIS	16 (53%)

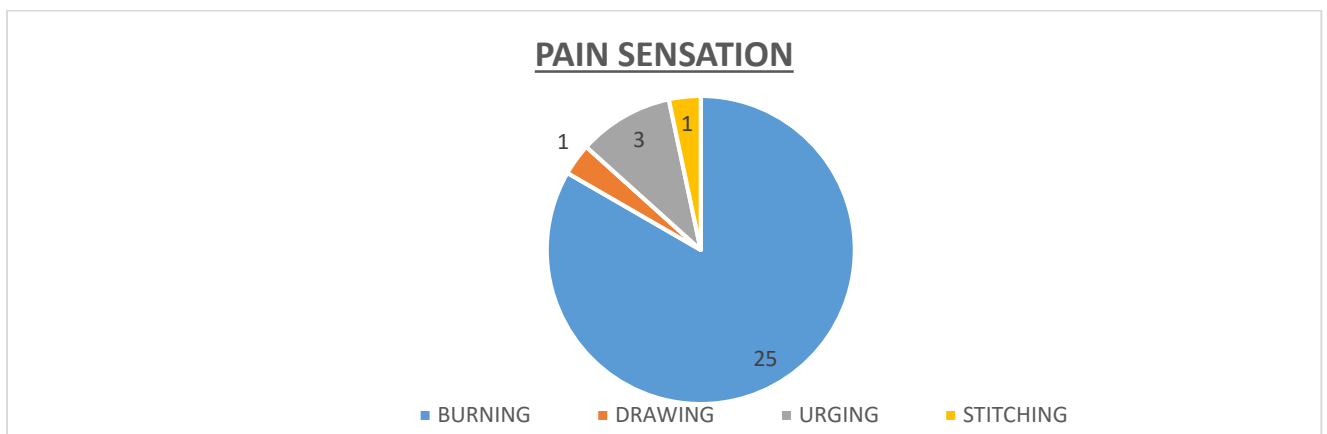
#### **4. PREVALENCE ACCORDING TO LOCATION(Figure 04)**



- i. IN 53% CASES BOTH BLADDER AND URETHRA WAS INVOLVED

- ii. IN 37% CASES ONLY BLADDER WAS INVOLVED
- iii. IN 10% CASES ONLY URETHRA WAS INVOLVED.

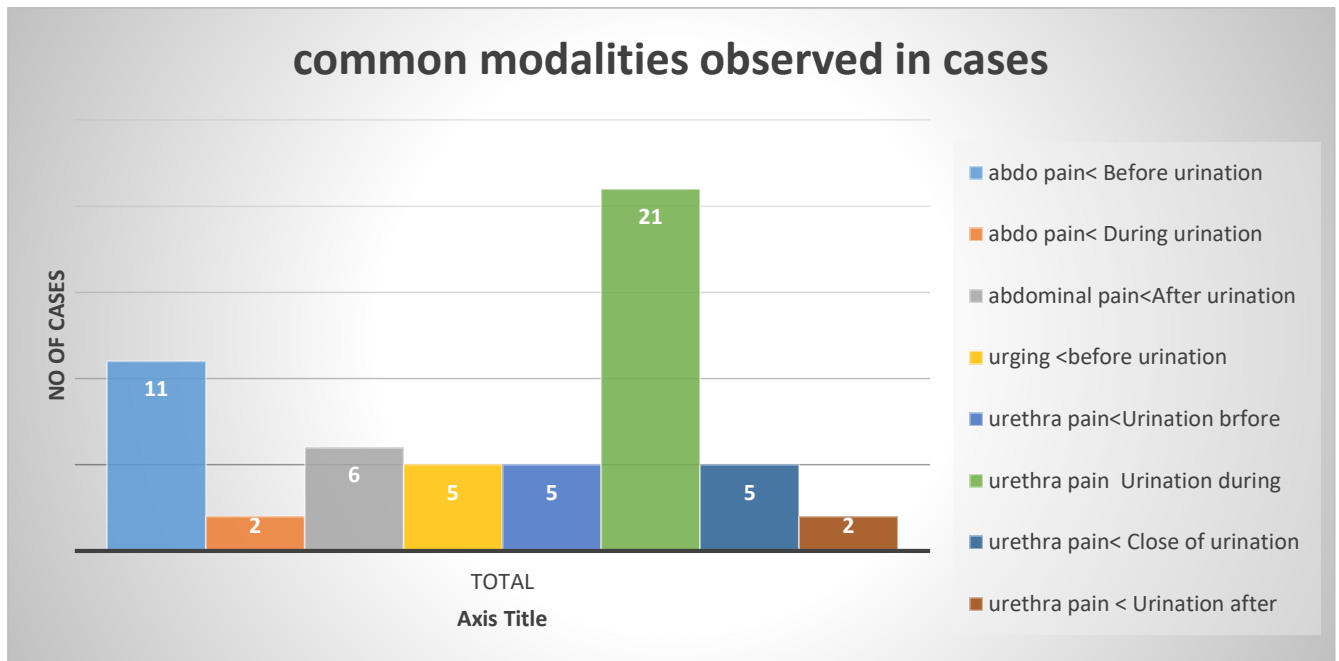
## 5. PREVALANCE ACCORDING TO SENSATION (Figure 05)



- i. THIS PIE CHART REPRESENTS THE SENSATION OBSERVED IN CASES
- ii. THE MOST COMMON SENSATION OBSERVED WAS BURNING IN 25/30 CASES
- iii. SENSATION OF URGING WAS SEEN IN 03 CASES
- iv. SENSATION OF DRAWING AND STITCHING WAS SEEN IN ONE CASE EACH

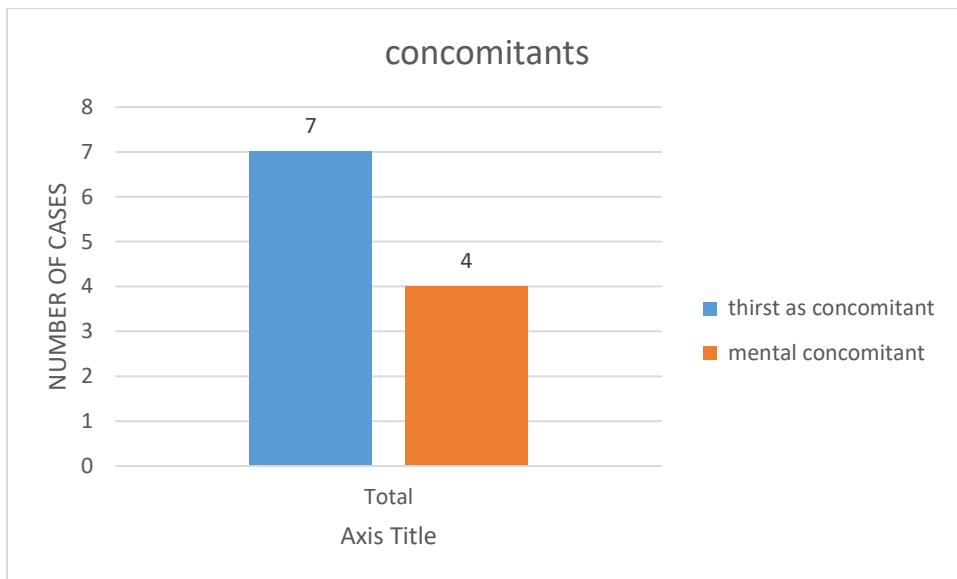


## 6. PREVALENCE ACCORDING TO MODALITIES(Figure 06)



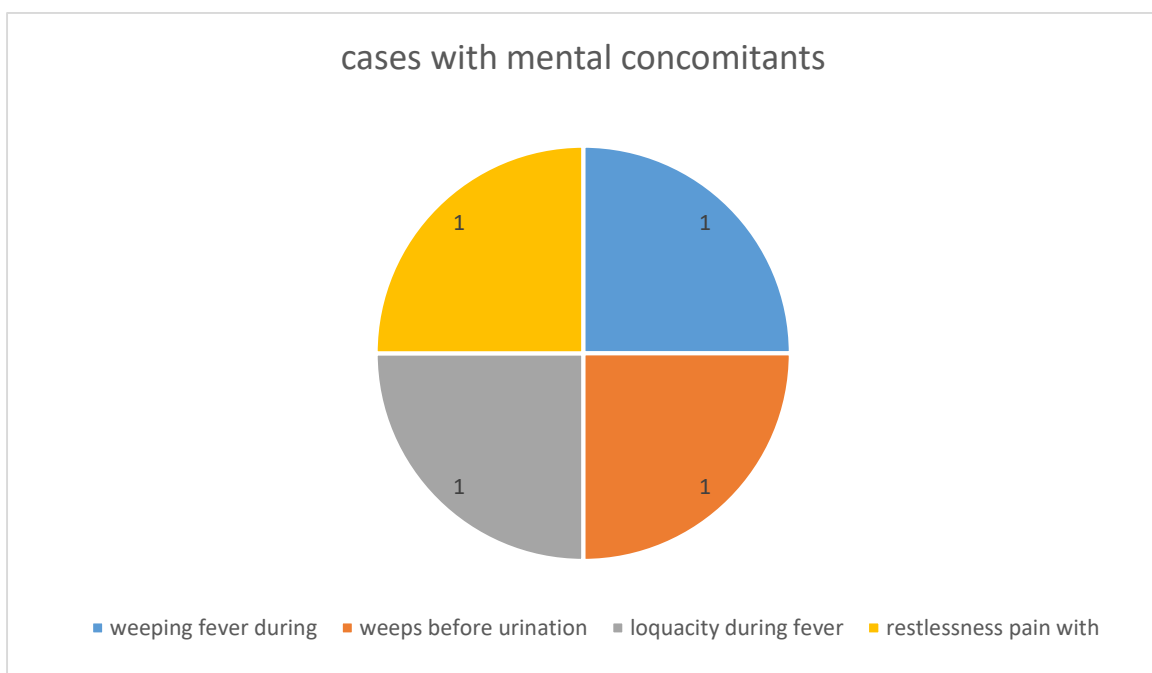
1. From the 30 cases observed most common modality seen in cases were burning pain urethra during urination cases 21/30 had this as chief modality of pain. Whereas before and after urination was seen in 5 cases
2. Pain in abdomen before urination was next most widely seen modality in 11 of the 30 cases.
3. There was urging to urination after urination in 5 cases.
4. 6 cases had abdominal pain aggravated after urination
5. Only 2 cases had urethral pain after urination.

## 7. Prevalence according to Concomitants (Figure 07)



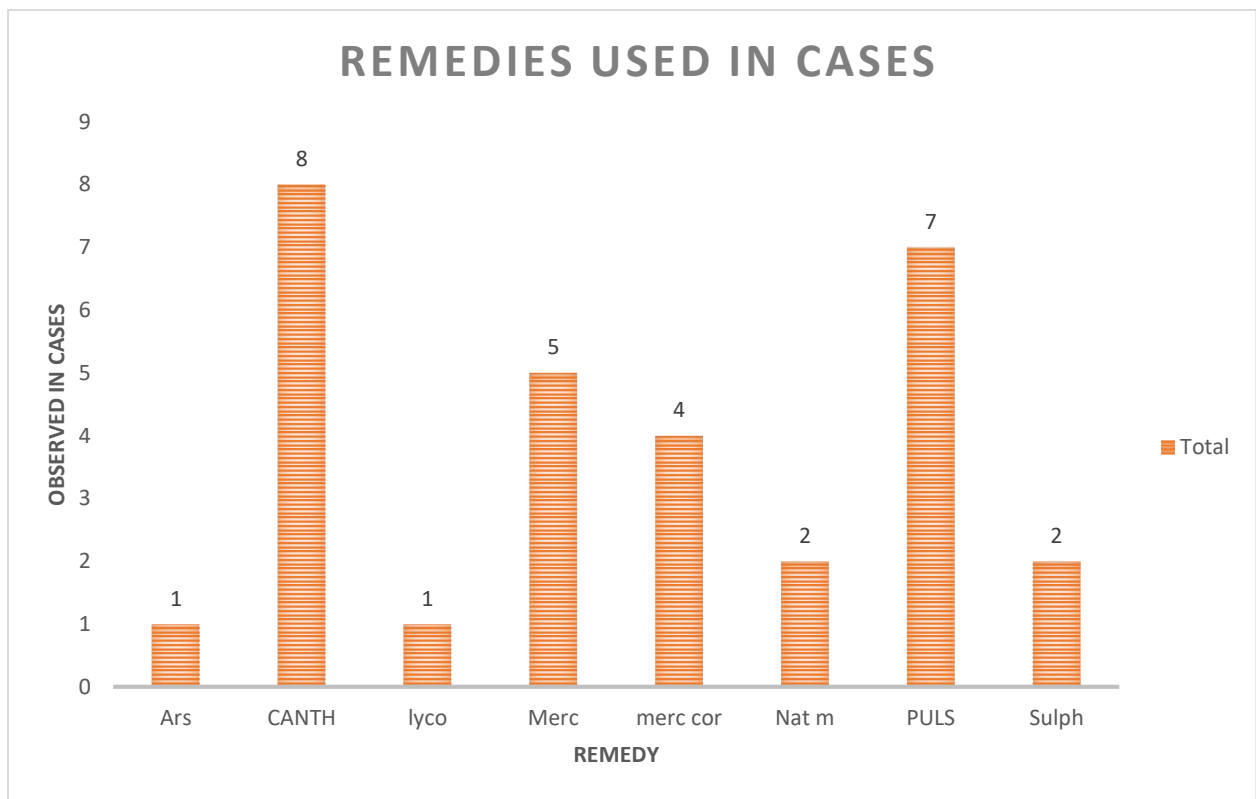
1. Out of 30 cases observed 7 cases had thirst reduced as concomitant based on which homoeopathic prescription was decided as being a physical general plus concomitant
2. In 4 cases mental symptoms were also observed along with urinary sector involvement like weeping, loquacity restlessness etc.

## 8. Prevalence according to Mental Concomitants (Figure 08)



4 cases had predominantly mental concomitants which were as represented in pie chart.

### 9. PREVALENCE ACCORDING TO REMEDIES (Figure 09)

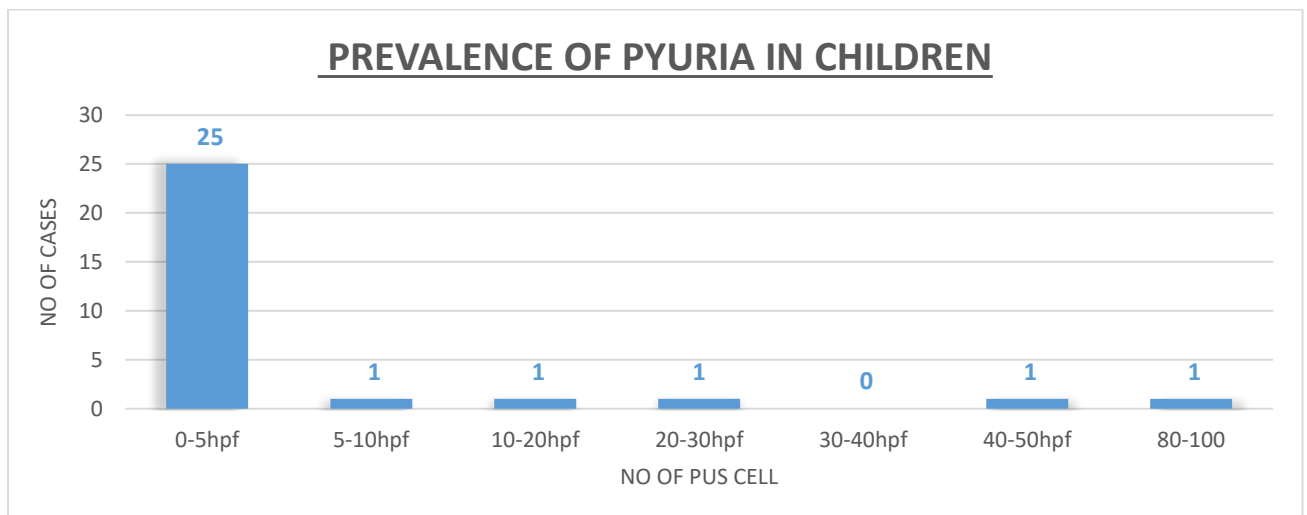


1. Most frequently used remedies were Cantharis(8) & Pulsatilla(7)
2. Merc was used in 5 cases
3. Merc cor was used in 4 cases
4. Nat-m and Sulphur was used in 2-2 cases each
5. Ars Album & Lycopodium was used in 1 case each

**10. SYMPTOMATIC INDICATION OF FREQUENTLY USED REMEDIES  
(Table no 1)**

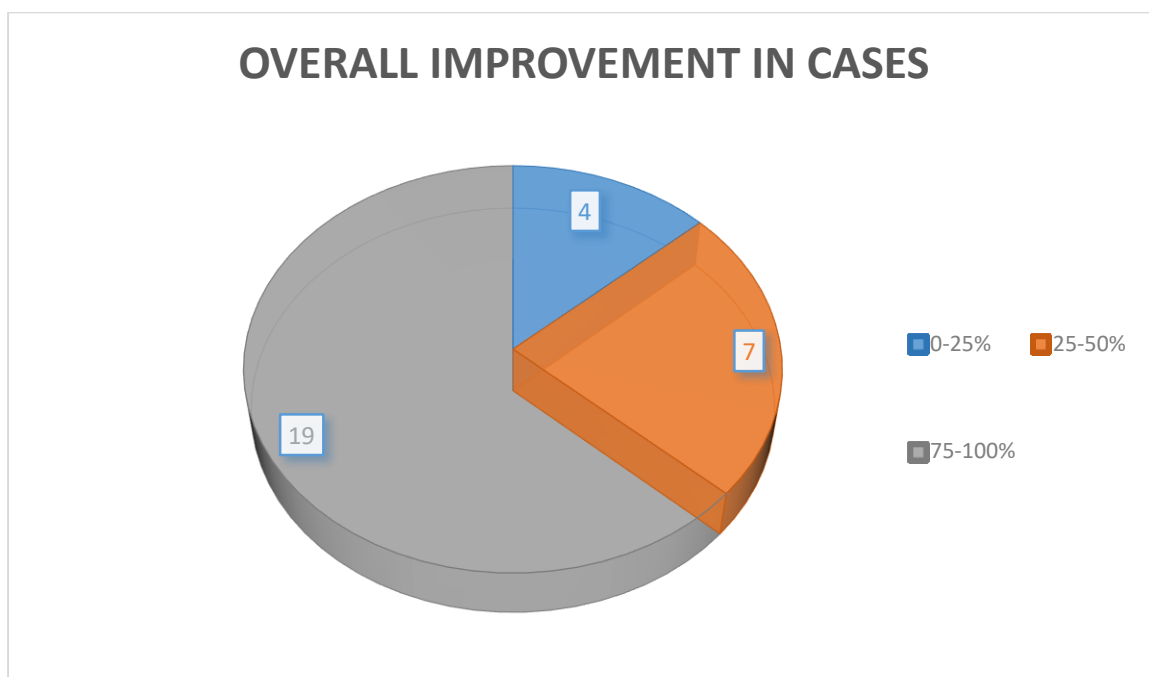
<b>SYMPTOMS</b>	<b>MERC GROUP</b>	<b>CANTHARIS</b>	<b>PULSATILLA</b>
Abdominal pain	4	2	5
Hypogastric	4	2	5
< Before urination	4	1	3
< During urination		1	1
< After urination	2		1
Urination offensive	4	2	
Urination Difficult	3	1	
Feeble stream,slow.weak	1	1	2
Frequent urination	3	5	6
Dribbling urination	5		2
Involuntary urination		1	
Urging to urinate	2	1	1
Before urination	2	2	1
Burning pain urethra	8	5	6
<Morning			1
< Urination before	1	3	1
<Urination during	6	4	6
<Close urination	1	1	2
<Urination after		1	
thirstlessness	1	4	1
Weeping/loquacity/restless	1	2	

### 11. PREVALENCE OF PYURIA IN CHILDREN (Figure 10)



1. Out of 30 cases studied only 5 cases showed significant pyuria
2. 1 case had significant pyuria 80-100 /h.p.f
3. 25 cases had pus cell between 0-5 h.p.f

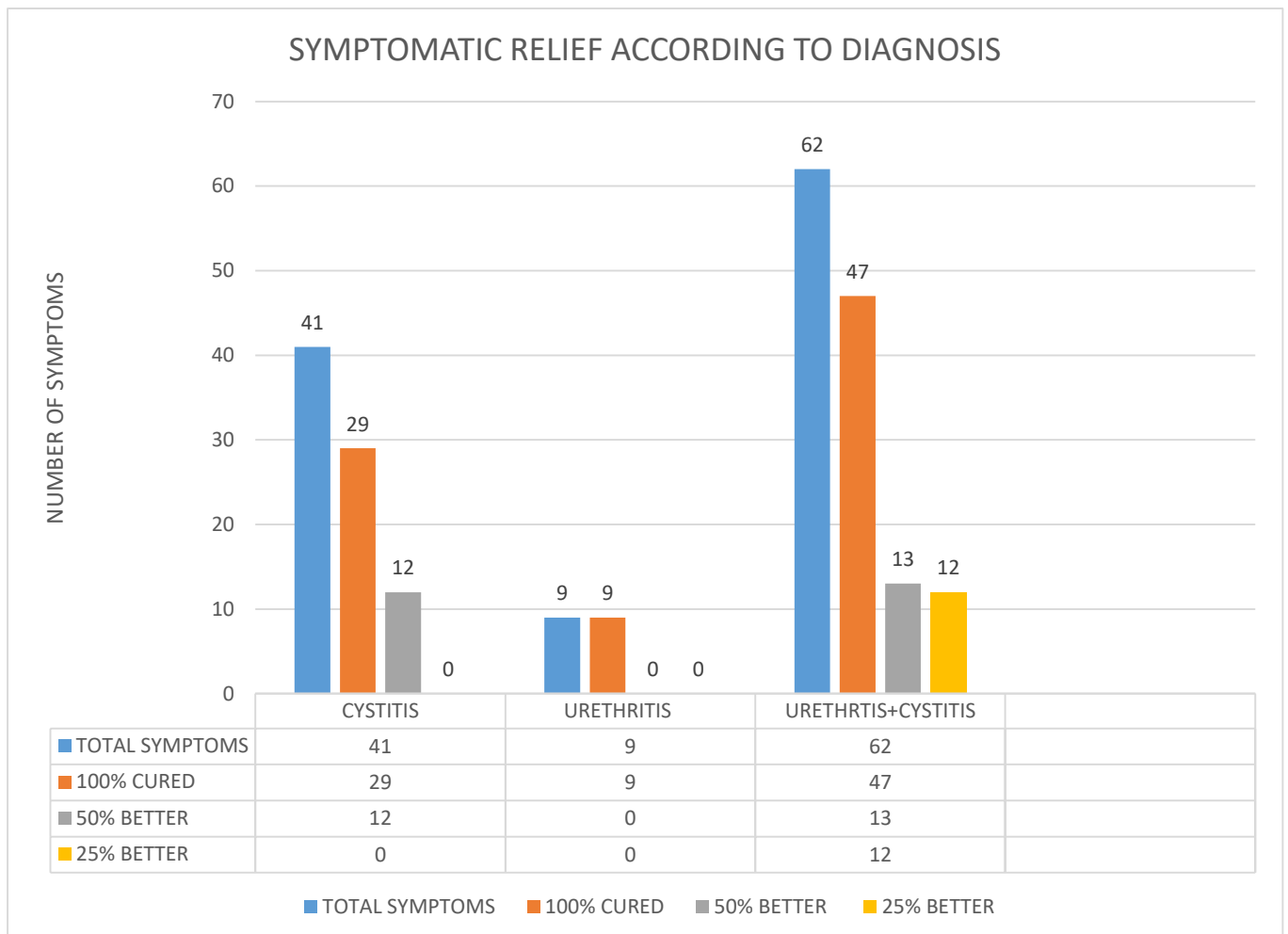
**12. Prevalence according to improvement in cases(Figure 11)**



This pie chart depicts percentage wise improvement seen in all 30 cases of uti which were treated with acute remedies.

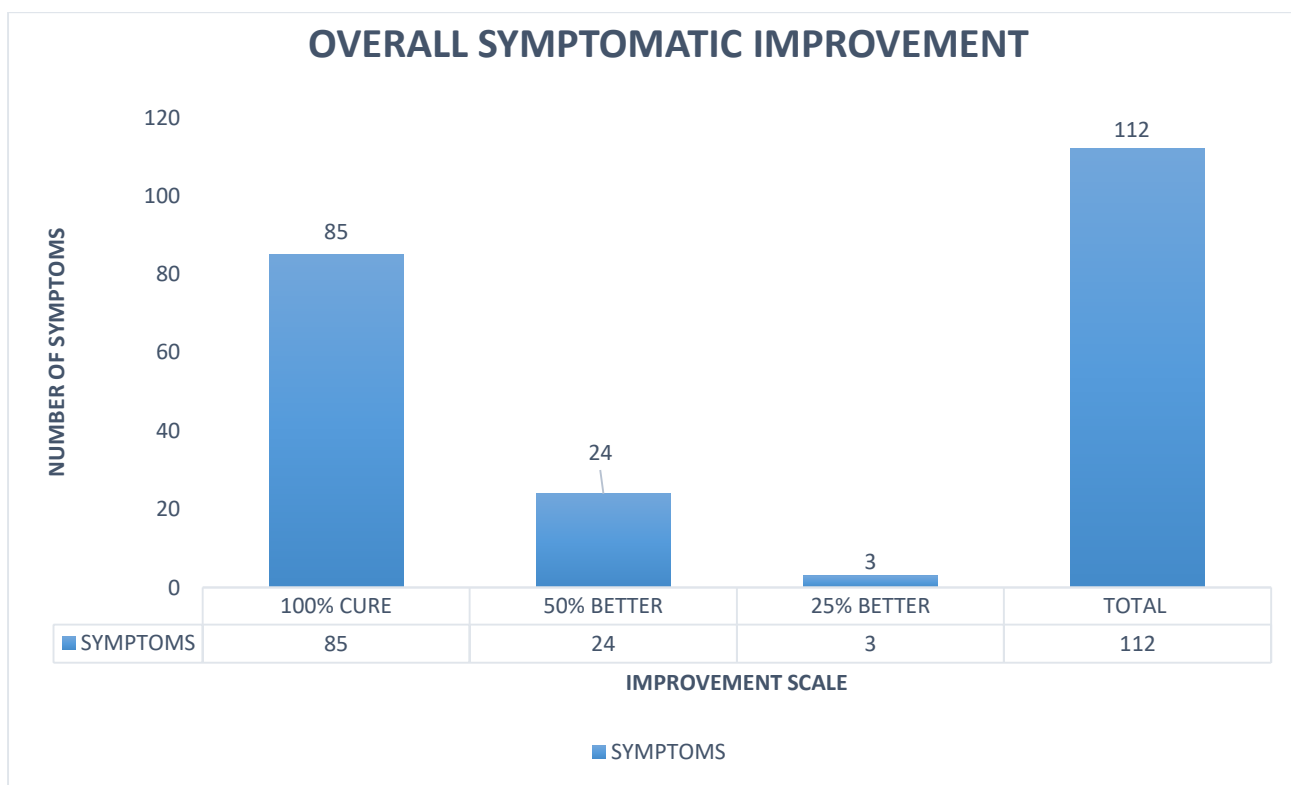
1. Out of 30 cases 19 cases(63%) showed significant improvement in range of 75-100%
2. Out of 30 cases 7 cases(23%) showed significant improvement in range of 25-50%
3. Out of 30 cases 4 cases(13%) showed significant improvement in range of 0-25%

### 13. PREVALENCE ACCORDING TO SYMPTOMATIC RELIEF SEEN BASED ON DIAGNOSIS(Figure 12)



1. 100% results were observed in all cases of urethritis with all 9 symptoms cured.
2. In cases of urethritis and cystitis in combination 47 symptoms of 62(75 %) were completely cured and 20 % symptoms were remarkably improved in range from 25 % to 50 %
3. 29 symptoms of 41 observed in case of cystitis were completely cured (100%)
4. Remaining 30 % symptoms of cystitis were 50% improved with homoeopathic medicines

**14. PREVALENCE ACCORDING TO SYMPTOMATIC IMPROVEMENT(Figure 13)**



A total of 112 symptoms were evaluated from all 30 cases of lower urinary tract infection.

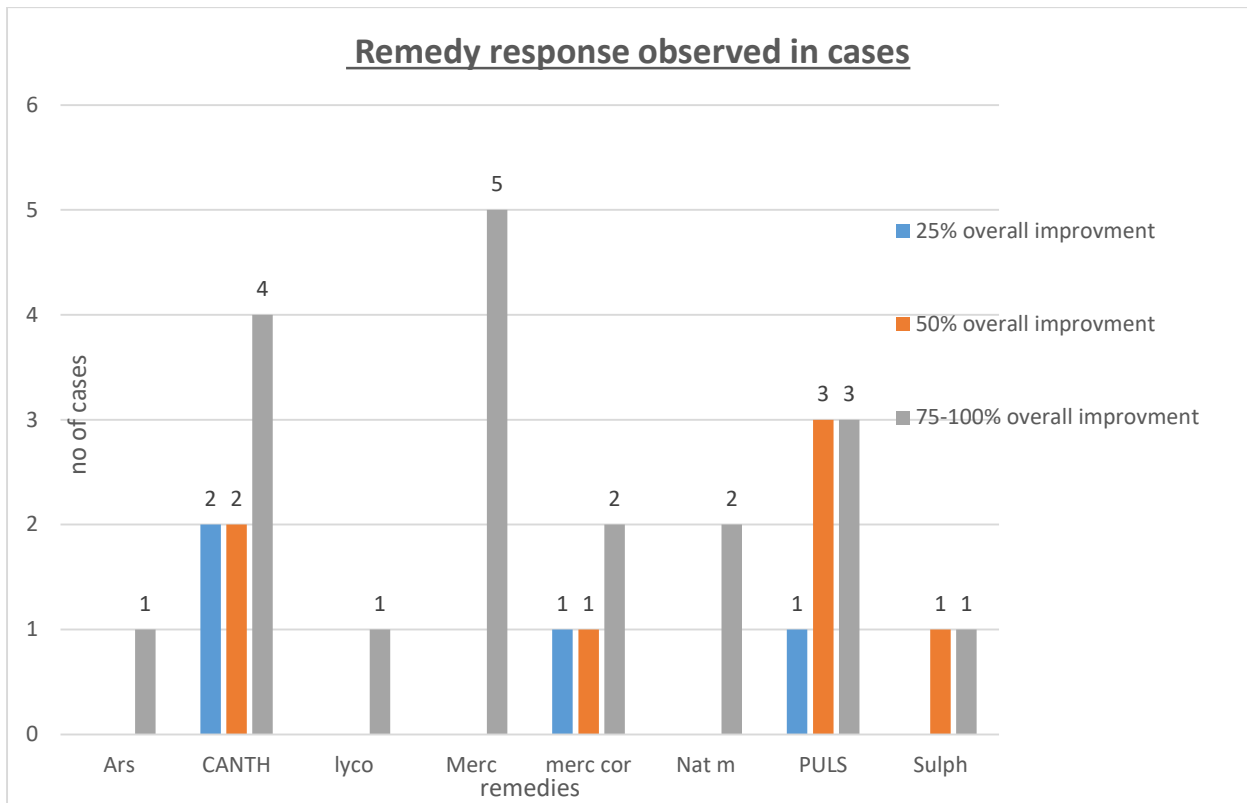
1. Of the 112, 85 symptoms (75.89%) were completely cured within 48-72 hours duration with homoeopathic medicine.
2. 24/112 symptoms (21%) were 50 percent better with treatment
3. Only 3 symptoms were just 25% better. (0.02%)
4. Not a single case observed where there was no improvement.



**1. DURATION WISE OVERALL IMPROVEMENT (Table no 2)**

DURATION	PERCENTAGE (%)
0-48 hours Mental generals	81%
48-72 hours Mental generals	100
0-48 Physical generals	75%
48-72 hours Physical generals	81%
0-48 Physical particulars	50%
48-72 hours Physical particulars	83%

## 15. REMEDY RESPONSE OBSERVED (Figure 14)



1. The most effective remedy useful in cases of lower urinary tract infection were Cantharis 4 / 8 cases showed 75-100% improvement. Merc sol(5/5) and Pulsatilla (3/7) with highest improvement rates observed
2. Ars album, lycopodium and sulphur also gave effective results in one case each.
3. Natrum muriaticum was successfully used with more than 75% improvement in 2 cases (2/2)

## **DISCUSSION**

Discussion is done on the basis of study of 30 cases of Acute lower urinary tract infection in paediatric age group. After studying all the cases, observations have been made & analysis has been done and on which discussion has been carried out under various headings.

### **1. Prevalence of age group**

In our study of 30 cases majority of children around 19 belonged to age group of 11 years to 15 years. 9 children belonged to age group of 6 to 10 years and one child each belong to age of 4 years and 18 years respectively. Children below the age of 3 years were excluded for this study as the sample collection is difficult in those children. As per review of literature as the age advances the chances of development of a lower urinary tract infection also increases. This was correlating from our findings where maximum cases belong to the age of more than 10 years.

### **2. Prevalence according to the gender**

From all the 30 cases which were studied it was observed that male predominance was more than females which had more symptomatic presentation of lower urinary tract infection. Out of 30 children 21 males had symptomatic presentation of urinary tract infection and only 9 females had the same presentation, According to review after age of 3 years there is more female predominance with m: f ratio being 1:10. But as per review of literature uncircumcised boys have more risk of development of infection which was correlating to our study as majority of males were uncircumcised and few had phimosis also.

The limitation of this study was we could not take the asymptomatic children especially girls for our study due to technical and logistic difficulties hence this variation was observed.

Also the sample size was also very small of just 30 children with age group from 3 years and above.

### **3. Prevalence according to diagnosis**

Of all the 30 cases studied around 3 cases were having urethritis, 11 cases had cystitis and 16 cases had combination of urethritis and cystitis.

Majority around 53 % cases had both urethritis with cystitis. From the review of literature it was evident that urethritis alone is very uncommon and it is seen more in males above age of 6 years. This was correlating to our study as well as just 3 cases (10%) were showing clinical presentation of urethritis and all were males above the age of 6 years.

Studies also shows that cystitis is most common form of diagnosis seen in lower urinary tract infection which was seen in our study too where 11 cases (37%) alone and 16 cases in

combination had presentation of cystitis accounting for 90% cases having symptoms of cystitis.

#### **4. Prevalence according to location.**

In a lower urinary tract infection the urethra and the urinary bladder are affected of which the bladder gets involved more than the urethra. In our study of 30 cases this was evident that the in only 3 cases the urethra was involved singly and in around 11 cases the bladder was involved. In 16 cases both the bladder and urethra was involved. From the literature it is clear that a urinary infection is an ascending infection where the bacteria enters the tract via the urethral orifice and then ascend up to the bladder where the bacteria colonize in the uroepithelium of the bladder wall, hence cystitis which is inflammation of bladder is very common presentation in a lower urinary tract infection which was also seen in our study where the bladder involvement is majorly seen in 27 cases.

#### **5. Prevalence according to sensation**

The most common presentation of a lower urinary tract infection is painful urination. This was evident from our study where out of 30 cases 25 had the characteristic burning type of pain and urging to urination was seen in 3 cases. Drawing and stitching type of pain was seen in 1 case each.

The type of pain experienced is not mentioned in literature but from our study we could elicit that majority had the burning sensation as chief complaint and also all the urine samples had an acidic pH of 6.0 thus bringing about this burning type of pain.

#### **6. Prevalence according to Modalities.**

From the 30 cases observed most common modality seen in cases were burning pain urethra during urination cases 21/30 had this as chief modality of pain. Whereas before and after urination was seen in 5 cases

Pain in abdomen before urination was next most widely seen modality in 11 of the 30 cases. There was urging to urination after urination in 5 cases.

6 cases had abdominal pain aggravated after urination. Only 2 cases had urethral pain after urination. From literature also it is evident that dysuria which is painful urination is common presentation of a lower UTI. Same was correlating to our study where pain during urination was most commonly seen.

#### **7. Prevalence according to concomitants.**

- a. Concomitants are the most characteristic symptoms and are of high value in prescribing totality during any homoeopathic treatment. Out of 30 cases observed 7 cases had thirst reduced as concomitant based on which homoeopathic prescription was decided as being a physical general plus concomitant
- b. In 4 cases mental symptoms were also observed along with urinary sector involvement like weeping, loquacity restlessness etc.

### **8. Prevalence according to mental concomitants.**

Out of 30 cases 4 cases had mental symptoms as concomitants. The mental symptoms observed in cases were weeping during fever, weeping before urination, loquacity during fever and restlessness with pain.

### **9. Prevalence according to remedies**

Most frequently used remedies were Cantharis (8) & Pulsatilla (7)

Merc sol was used in 5 cases

Merc cor was used in 4 cases

Nat-m and Sulphur was used in 2-2 cases each

Ars Album & Lycopodium was used in 1 case each

From the homoeopathic therapeutic literature it is evident that most frequently used remedies are cantharis pulsatilla as stated in boriecke and farrington material medica.

Merc sol and merc cor were also found to be most frequently used in our study.

### **10. Indication of frequently used remedies.**

Pulsatilla, cantharis and merc sol and merc cor (merc group) were most frequently used in the study of the 30 cases. Out of 30 cases 24 cases received these four remedies with merc group given in 9 cases, cantharis in 8 cases and pulsatilla in 7 cases.

The indication for merc group was the stream of urination was affected with difficulty to pass urine and also the offensively of urine was guiding indication.

Cantharis was indicated in cases where there was increased frequency of urination with burning pains.

Pulsatilla was indicated in cases where there was suprapubic pain before urination with increased urinary frequency and also where there was burning during urination. The thirstlessness was also guiding indication for prescription.

### **11. Prevalence of pyuria in children**

In all 30 cases urine microscopy and routine examination was done to see the presence of pus cell in urine. From the statistical data available out of 30 cases 25 cases had pus cell below 5/h.p.f.

Only 5 cases had pus cells above 5/hpf, with one case each case having pus cell in range of 5-10, 10-20, 20-30, 40-50, 80-100 hpf respectively.

Now according to studies presence of more than 10 pus cell/ h.p.f is diagnostic of a lower urinary tract infection. But in paediatric age group as per review of literature "Pyuria suggests Infection, but infection can occur in the absence of pyuria; consequently, this finding is more confirmatory than diagnostic. Conversely, pyuria can be present without UTI, if the child is symptomatic, a UTI is possible, even if the urinalysis result is negative."

This information from the references were verified from our study where all 30 children of different age group presented with clinical presentation of lower urinary tract infection but majority did not have pyuria.

#### **12. Prevalence according to overall improvement observed in cases**

- a. Out of 30 cases 19 cases(63%) showed significant improvement in range of 75-100%
- b. Out of 30 cases 7 cases(23%) showed significant improvement in range of 25-50%
- c. Out of 30 cases 4 cases(13%) showed significant improvement in range of 0-25%

In all cases clinical symptomatic improvement was observed based on symptom severity and intensity. In all the cases acute homoeopathic remedies were used purely.

#### **13. PREVALENCE ACCORDING TO SYMPTOMATIC RELIEF SEEN BASED ON DIAGNOSIS**

- a. 100% results were observed in all cases of urethritis with all 9 symptoms cured.
- b. In cases of urethritis and cystitis in combination 47 symptoms of 62(75 %) were completely cured and 20 % symptoms were remarkably improved in range from 25 % to 50 %
- c. 29 symptoms of 41 observed in case of cystitis were completely cured (100%)
- d. Remaining 30 % symptoms of cystitis were 50% improved with homoeopathic medicines

From all the above observations it is evident that homoeopathy is very highly effective in cases of urethritis with all symptoms getting cured.

In cases where there the combination of both cystitis and urethritis 75% of the total symptoms' were cured completely. So homoeopathic remedies were effective in treatment of cystitis and urethritis both in single and combination according to the observation.

#### **14. Overall symptomatic improvement**

A total of 112 symptoms were evaluated from all 30 cases of lower urinary tract infection.

5. Of the 112, 85 symptoms (75.89%) were completely cured within 48-72 hours duration with homoeopathic medicine.
6. 24/112 symptoms (21%) were 50 percent better with treatment
7. Only 3 symptoms were just 25% better. (0.02%)

Not a single case observed where there was no improvement.

#### **15. Duration wise improvement**

Follow up after acute prescription were taken in span of 48 hours and 72 hours respectively.

From the 30 cases studied the following observation were evident

- a. In cases where there was mental generals and physical generals apart from particulars in those cases the generals improve first within first 48 hours.
- b. About 81% improvement in mental generals was observed in first 48 hours and 100% cure seen in next 48-72 hours.
- c. The physical generals improved as well with 75% improvement in first 48 hours and 81% improvement in next 24 hours
- d. All the physical particulars or we can say the chief complaints of the urinary sector were 50% better in the first 48 hours itself and 83% improvement in 48-72 hours.

From the above observation the mental generals were completely cured in the span of 72 hours after giving treatment. From the literature it is evident that healing takes place from general to particular with the mind healing first then the body. In our study also this was evident. The only limitation was no further follow up beyond 72 hours could be taken hence further improvement details were unavailable.

#### **16. Remedy response observed**

- a. The most effective remedies useful in cases of lower urinary tract infection were Cantharis 4 / 8 cases showed 75-100% improvement. Merc sol(5/5) and Pulsatilla (3/7) with highest improvement rates observed
- b. Ars album, lycopodium and sulphur also gave effective results in one case each.
- c. Natrum muriaticum was successfully used with more than 75% improvement in 2 cases (2/2)

So from the above observation cantharis pulsatilla and merc group of remedies were highly effective in majority of cases with more than 75 % symptomatic improvement seen.

The data from the review of literature mentions merc group and cantharis and pulsatilla in cases of urethritis and cystitis but it is in general population and not been evaluated in paediatric age group

## CONCLUSION

A Prospective study was undertaken to explore the role of Homoeopathy in the management of acute lower urinary tract infection in paediatric age group

A random selection of 30 cases were taken from age group of 3 to 18 years. Every case was studied to the depth to understand postulated aims by following specific directives and objectives. All the cases were studied in terms of the clinical presentation, the response after giving remedies and its effect.

From the study of the 30 cases following **conclusion** were made:

1. Lower urinary tract infections are more common in the school age group of children from 6 years to 15 years of age.
2. Acute cystitis and acute cystitis with urethritis is the most common type of lower urinary tract infection present in paediatric age group
3. Cantharis, Pulsatilla, merc cor and merc sol are very useful and effective remedies in the treatment of lower urinary tract infection in pediatric age group
4. A lower urinary tract infection is possible even if there is absence of pus cell in urine provided the child is symptomatic. Presence of pus cell does not always mean it is a urinary tract infection.
5. The susceptibility of the child plays a important role in development and progress of disease.
6. Homoeopathic remedies are having a vital role in management of cases of cystitis and urethritis with cystitis with good results.
7. Individual symptomatic presentation varies in each case even if the diagnosis is same. This demonstrates the concept of individualization on which homoeopathic treatment is dependent.
8. The improvement begins at general level, then progressing to the particular level.