

## COMPARATIVE STUDY OF EFFECT OF BADARASHMA PISHTI AND KSHAR PARPATI IN MANAGEMENT OF MUTRASHMARI W. S. R. TO UROLITHIASIS

Pranav Prakash Redkar<sup>1</sup>, M. J. Qadri<sup>2</sup>

<sup>1</sup>MS Scholar, Shalyatantra Dept,

<sup>2</sup>Professor & HOD, Shalyatantra Dept,  
Government Ayurved College, Osmanabad, Maharashtra, India

Email: [drpranav213@gmail.com](mailto:drpranav213@gmail.com)

### ABSTRACT

*Mutrashmari* is a disease of *Mutravaha strotas*. According to Sushruta *Mutrashmari* is formed as a result of drying of *kapha* because the action of *vata* and *pitta*. *Mutrashmari* word constitute of two words; *mutra* and *ashmari*. *Ashmari* is a disease in which there is formation of stone resulting in severe pain. The present study is planned to evolve an effective conservative treatment by Ayurvedic approach to avoid surgical intervention. The line of treatment is not only to eliminate or to remove the urinary stones but also meanwhile avoid the recurrence of disease. The present study is Randomized, Single blind, Prospective, Comparative clinical trial, which includes two groups. Group 'A' and Group 'B' with sample size 60. Two important formulations, "*Badarashma pishti*" and "*Kshar parpati*" mentioned in classical Ayurvedic texts were selected for the study. The results showed that *Badarashma pishti* and *Kshar parpati* both are effective in management of *Mutrashmari*. Small sized calculus easily expelled within duration of 45 days. Large sized calculus reduced in its size but require longer duration of treatment to expel out completely. *Badarashma pishti* is found more effective in disintegration and expulsion of calculus.

**Keywords:** *Mutrashmari*, Urolithiasis, *Badarashma pishti*, *Kshar parpati*.

### INTRODUCTION

*Mutrashmari* is a disease of *Mutravaha strotas*. According to Sushruta *Mutrashmari* is formed as a result of drying of *kapha* because the action of *vata* and *pitta*.

*Mutrashmari* word constitute of two words; *mutra* and *ashmari*. *Ashmari* is a disease in which there is formation of stone resulting in

severe pain. The disease is categorized as a *Mahagada* and include in '*Ashtamahagada*' by Sushruta.

Urolithiasis is a condition, where urinary stones are formed. They are found localized anywhere in the urinary tract. Urinary stones are typically classified by their chemical composition (cal-

cium containing, struvite, uric acid, phosphate, cystine, xanthine, indigo). In humans, calcium oxalate is a major constituent of most of the urinary stones. Approximately 2% of population experiences the disease in lifetime. It is more commonly seen in males than females, with peak incidence in second and third decades of life. Today's developing world has given mankind a vicious lifestyle with excessive physical and mental stress. It is supplemented by unnatural food habits like fast food. These factors lead to disturbed bowel habits with irregular timings, less water intake, suppression of natural urges, constantly sitting work and improper sleep time table. As a result of all these factors, rise in many diseases including urinary disorders is seen.

The treatment of urolithiasis with small size urinary stones is usually treated with hydrotherapy. The large sized stones are removed with surgical intervention. Advance techniques like Percutaneous nephrolithotomy and Extracorporeal shock wave lithotripsy are non invasive, but these techniques may prove disadvantageous. Moreover, these techniques are expensive and available at limited places, therefore not accessible to common man. Urinary stones have a peculiar tendency of recurrence, despite of their surgical removal. Therefore surgery is not the complete treatment of urinary stones.

The present study is planned to evolve an effective conservative treatment by Ayurvedic approach to overcome the above described problems and to avoid surgical intervention. The line of treatment is not only to eliminate or to remove the urinary stones but also meanwhile avoid the recurrence of disease.

In Ayurvedic texts, several numbers of drugs and formulations are mentioned for different types of *Ashmari*. Two important formulations

are mentioned, "*Badarashma pishti*" mentioned in *Rasamrutam* as well as *Siddha yog sangraha* and "*Kshar parpati*" mentioned in *Siddha yog sangraha* are selected for the present study.

**AIM:** To find out a simple, harmless, conservative and effective method to treat *Mutrashmari*

### OBJECTIVES

- To evaluate the effect of *Badarashma pishti* in management of *Mutrashmari*.
- To evaluate the effect of *Kshar parpati* in management of *Mutrashmari*.
- To evaluate the effect of *Badarashma pishti* and *Kshar parpati* in management of *Mutrashmari*.

### MATERIALS AND METHODS

#### PLACE OF STUDY

Patients who reported to OPD and IPD of Hospital are carefully selected on the basis of diagnostic, inclusive criteria.

#### CONSENT

A well informed written consent of all patients included in my study is taken before starting treatment.

#### TYPE OF STUDY

The present study is Randomized, Controlled, Single blind, Prospective, Comparative clinical trial, which includes two groups. Group 'A' and Group 'B'.

#### SAMPLE SIZE

SIXTY (60)

GROUP 'A' – 30

GROUP 'B' – 30

#### DRUG USED

**GROUP A – BADARASHMA PISHTI**

**GROUP B – KSHAR PARPATI**

### INCLUSIVE CRITERIA

- Patients having age in between 15 – 60 years.
- Patients of either sex will be taken.
- Patients of all types of *Mutrashmari* except *Shukrashmari*.
- Patient having calculus size upto 12 mm anywhere in the urinary tract.
- Stone numbers 1-3.

### EXCLUSIVE CRITERIA

- Pregnant and lactating mother.
- Renal calculus size greater than 12 mm.
- Chronic kidney disease.
- Stag Horn calculus.
- AIDS, Tuberculosis, Hypertension, Diabetes Mellitus, Cardiac pathologies, etc.

### INVESTIGATIONS

- Blood – Hb %  
WBC  
TLC
- ESR
- Sr. Creatinine, BUN
- Urine – Routine and Microscopic
- USG – Abdomen + Pelvis
- If necessary X-ray KUB and IVP

### CRITERIA FOR ASSESSMENT

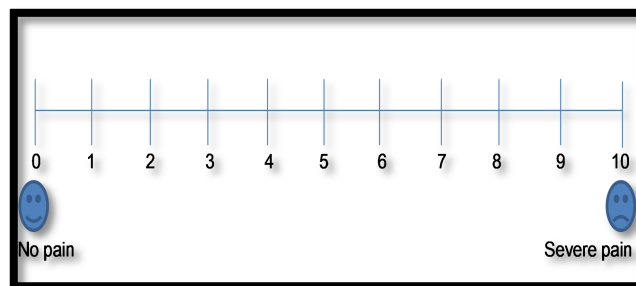
#### 1. Size of stone

Size of stone is directly measured through Ultrasonography.

#### 2. Pain in abdomen

##### Visual analogue pain scale

**Figure 1:** Visual analogue pain scale



**Table 1:** Visual analogue pain scale gradation

0	1	2	3	4	5	6	7	8	9	10
No	Doesn't disturb routine		Disturbs routine			Patient rolls on the bed				
No	Mild		Moderate			Severe				

- **Grade 0** No pain.
- **Grade I** Present but doesn't disturb routine (mild pain).
- **Grade II** Present which disturbs routine (moderate pain).
- **Grade III** Patient rolls on the bed due to pain (severe pain).

### 3. DYSURIA

- **Grade 0** Absent of pain during micturition.
- **Grade I** Mild pain during micturition.
- **Grade II** Moderate pain during micturition.
- **Grade III** Severe pain during micturition.

### 4. HAEMATURIA

- **Grade 0** Absence of RBCs in urine.
- **Grade I** Microscopic haematuria.
- **Grade II** Macroscopic haematuria.

### DOSAGE

**Badarashma pishti:** 500 mg TDS orally

*Anupan:* Water

*Sevan kala:* Before food

**Kshar parpati:** 500 mg TDS

*Anupan:* Water

*Sevan kala:* After food

**DURATION OF TREATMENT:** 45 days

**FOLLOW UP:** After every 15 days

**METHOD OF PREPARATION:**

**BADARASHMA PISHTI**

**Drugs required**

*Shodhita Badarashma.*

*Gulab jala.*

**Preparation will**

*Badarashma pishti* was prepared by taking *shodhita Badarashma churna* in clean, dry *khalwa yantra* and by adding sufficient quantity of *Gulab jala* and carrying out *Mardana* for three days.

**KSHAR PARPATI**

**Drugs required**

*Kalami sora* (Potassium Nitrate).

*Sphatika* (Alum).

*Navasadar* (Ammonium Chloride).

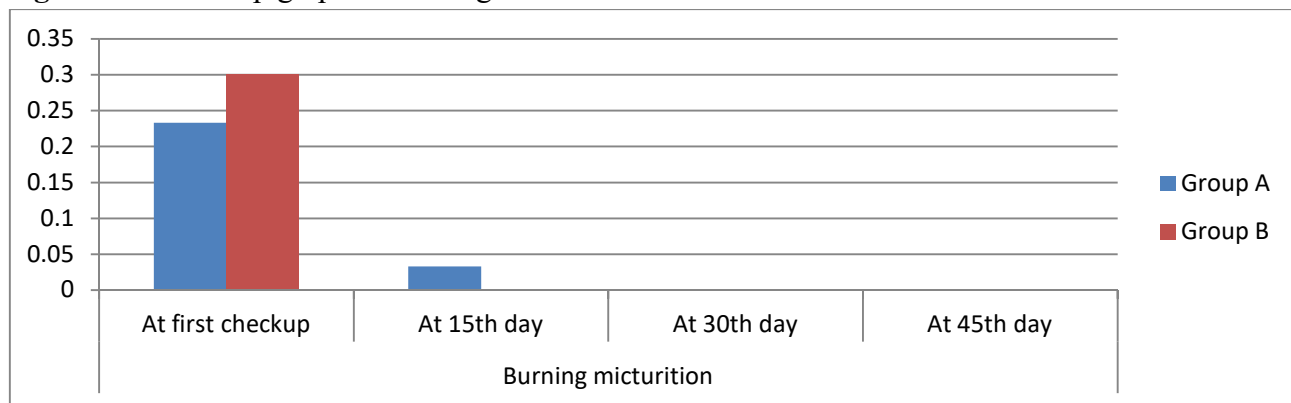
**Preparation**

*Kshar parpati* was prepared by using standard method of preparation of *parpati*. *Kalami sora*, *Sphatika* and *Navasadar* will be grinding well. By taking it in mud vessel and heat it until it will melt. After uniform melting quickly transfer the melted material to the clean *Kadali patra* coated with *ghee* which placed on even surface. The material will be covered by another *Kadali patra* followed by gently pressing it and allow it to cool to form thin white *Parpati*.

**OBSERVATIONS**

**Burning micturition**

**Figure 2:** Follow up graph of burning micturition



**Table 2:** Mean score of burning micturition on follow up

Mean score	Burning micturition			
	At first checkup	At 15 <sup>th</sup> day	At 30 <sup>th</sup> day	At 45 <sup>th</sup> day
Group A	0.233	0.033	0	0
Group B	0.300	0	0	0

**Table 3:** Unpaired t test for burning micturition

Burning micturition	Mean difference	Standard error	Unpaired t score
	0.033	0.033	0.993

**Table 4:** Follow up of patients having burning micturition

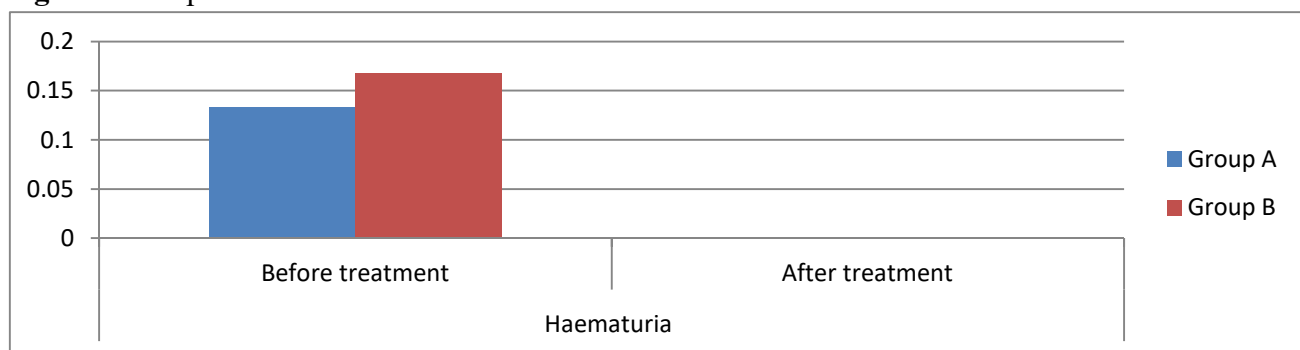
No. of patients	Before treatment	After 15 <sup>th</sup> day	After 30 <sup>th</sup> day	After 45 <sup>th</sup> day
Group A	4	0	0	0
Group B	5	0	0	0

Burning micturition is associated symptom present in 4 patients in group A and 5 patients in group B. Out which in all the patients' symptom is subsided at the end of 15<sup>th</sup> day of treatment. It

suggests that both the groups are equally effective in controlling Burning micturition, while action of group A is better than that of group B.

### Haematuria

**Figure 3:** Graph of haematuria before and after treatment



**Table 5:** Mean score of haematuria on follow up

Mean score	Haematuria	
	Before treatment	After treatment
Group A	0.133	0
Group B	0.167	0

**Table 6:** Follow up of patients having haematuria

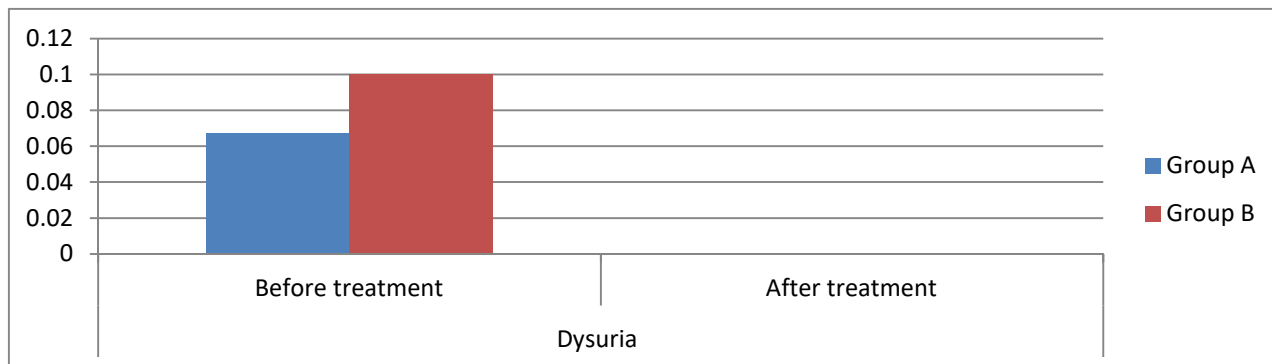
No. of patients	Before treatment	After 15 <sup>th</sup> day	After 30 <sup>th</sup> day	After 45 <sup>th</sup> day
Group A	4	0	0	0
Group B	5	0	0	0

Haematuria is associated symptom present in 4 patients in group A and 5 patients in group B. Out which in all the patients symptom is subside

after 15<sup>th</sup> day of the treatment. It suggests that both the groups are equally effective in controlling haematuria.

## Dysuria

**Figure 4:** Graph of dysuria before and after treatment



**Table 7:** Mean score of dysuria on follow up

Mean score	Dysuria	
	Before treatment	After treatment
Group A	0.067	0
Group B	0.100	0

**Table 8:** Follow up of patients having dysuria

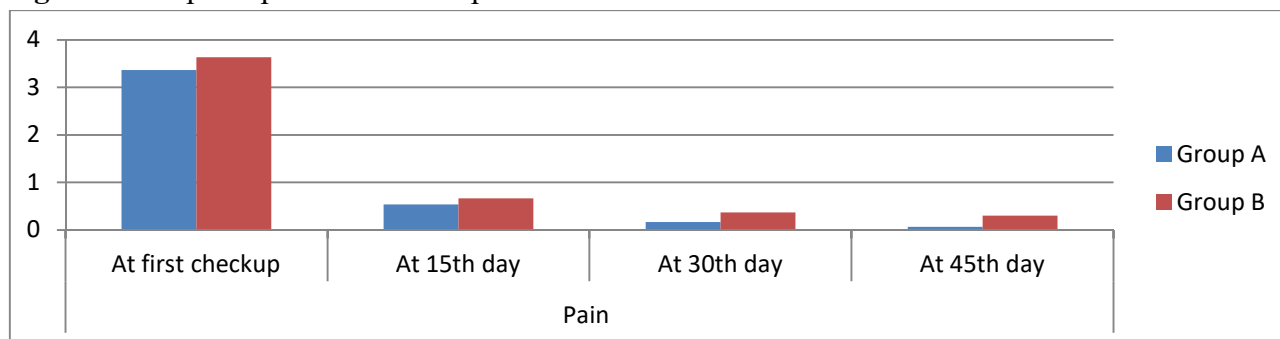
No. of patients	Before treatment	After 15 <sup>th</sup> day	After 30 <sup>th</sup> day	After 45 <sup>th</sup> day
Group A	2	0	0	0
Group B	3	0	0	0

Dysuria is associated symptom present in 2 patients in group A and 3 patients in group B. Out of which in all the patients symptom is subside af-

ter 15<sup>th</sup> day of the treatment. It suggests that both the groups are equally effective in controlling Dysuria.

## Pain

**Figure 5:** Graph of pain on follow up



**Table 9:** Mean score of pain on follow up

Mean score	Pain			
	At first check-up	At 15 <sup>th</sup> day	At 30 <sup>th</sup> day	At 45 <sup>th</sup> day
Group A	3.367	0.533	0.167	0.067
Group B	3.633	0.667	0.367	0.300

**Table 10:** Unpaired t test for pain

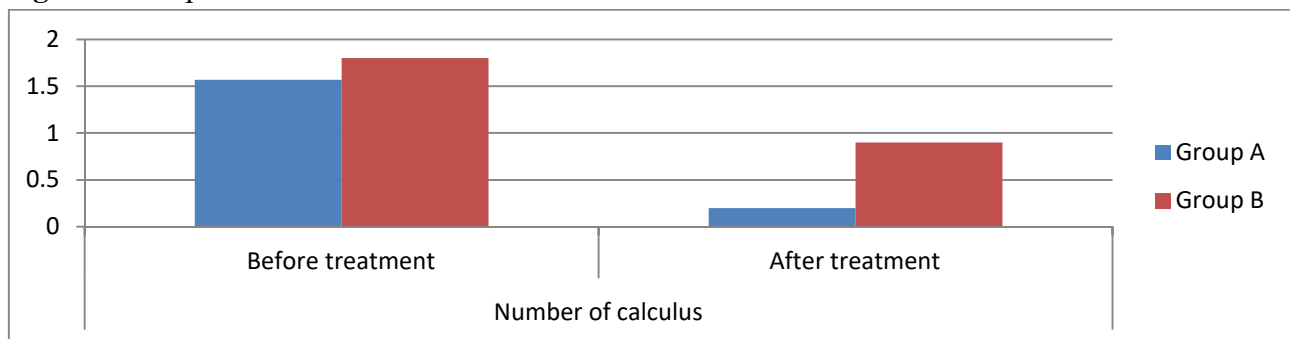
Pain	Mean difference	Standard error	Unpaired t score	P value
At 15 <sup>th</sup> day	0.134	0.266	0.501	0.617
At 30 <sup>th</sup> day	0.2	0.170	1.178	0.244
At 45 <sup>th</sup> day	0.233	0.144	1.613	0.112

The table shows the statistical analysis for Pain, where t-score shows the difference is not statistically significant after every follow up. It sug-

gests that both the groups are equally effective in controlling Pain in Urolithiasis.

### Number of calculus

**Figure 6:** Graph of number of calculus before and after treatment



**Table 11:** Mean score of number of calculus before and after treatment

Mean score	Number of calculus	
	Before treatment	After treatment
Group A	1.567	0.200
Group B	1.800	0.900

**Table 12:** Unpaired t test for number of calculus

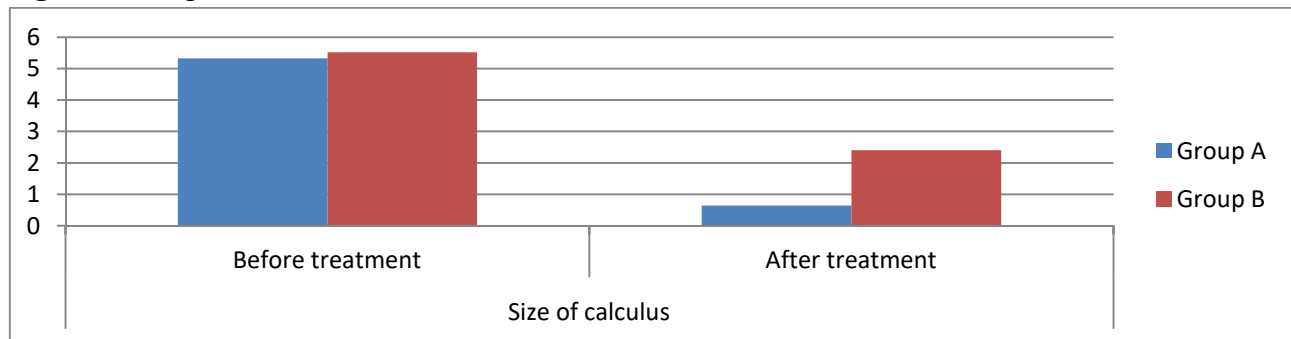
Number of calculus	Mean difference	Standard error	Unpaired t score	P value
	0.700	0.207	3.371	0.0013

The table shows the statistical analysis for Number of calculus where t-score shows the difference is very significant at the end of study. It

suggest that group A is more effective than group B in expulsion of calculus.

### Size of calculus

**Figure 7:** Graph of size of calculus before and after treatment



**Table 13:** Mean score of size of calculus before and after treatment

Mean score	Size of calculus (in mm.)	
	Before treatment	After treatment
Group A	8.333	1.013
Group B	9.933	4.037

**Table 14:** Unpaired t test for size of calculus

Size of calculus	Mean difference	Standard error	Unpaired t-score	P value
	3.024	1.059	2.856	0.0059

The table shows the statistical analysis for size of calculus where t-score shows the difference is very significant at the end of study. It suggest that group A is more effective than group B in reducing size of calculus.

## DISCUSSION

The patients attended in this study are from rural area. This particular region can be considered as *Jangal desh*. The atmosphere of here is hot and dry. Most of the people coming in hospital are from poor economical class, they are mostly farmers and labourer. The people from this area suffer from crisis of water supply every year. In summer season it is difficult to get drinking water also. Main source of water is bore well, which is hard water. As people are unaware about their health, they drink water without purification or filtration. They also do not afford packaged drinking water. Most of the patients

come to hospital only at their extreme presentation of the disease, so it becomes challenging for the physician to treat such patients.

The main reasons behind formation of stone I have found is drinking hard water, excessive exertion which causes dehydration, hot and dry climate and unawareness of patients about their health. It is also noticed that, all the patients drink tea and most of the male patients are addicted to tobacco chewing and a few to drinking alcohol, which might be the associated cause.

According to modern Science of Medicine, the treatment of urolithiasis with small size is usually with hydro-therapy. The large sized stones are removed with surgical intervention. Advanced techniques like PCNL and ESWL are non-invasive, but these techniques may prove disadvantageous. Moreover these techniques are expensive and available at limited places, therefore not accessible to common man. Urinary



stones have a peculiar tendency of recurrence, despite of their surgical removal. Therefore surgery is not the complete treatment of urinary stones.

By adopting Prakrutivighata principle, the line of treatment is not only to eliminate or to remove the urinary stones but also meanwhile avoid the recurrence of disease.

- Maximum numbers of patients are seen between the age group of 21 to 30 (33% i. e. 20 out of 60).
- Sex wise distribution showed that out of 60 patients, 36 were male (60%) and 24 were females (40%).
- Out of 60 patients, 63% are vegetarian and 37% are non-vegetarian.
- Observation showed that 18(30%) patients were housewives, 13(21.7%) were students, 10(16%) were farmers, 5(8.3%) were labourer, 4(6.7%) were businessman, 2(3.3%) were driver and 8(13.3%) patients from other professions.
- Distribution according to site of calculus showed that 83.13% patients had calculus at calyx and pelvis of the kidney, 16.83% calculus found in ureter. Out of all kidney calculus, maximum numbers of stones (69%) were found in mid pole and pelvo-ureteric junction. Out of all ureteric calculus, maximum number of calculus (82.35%) seen in lower pole and uretero-vesicular junction.
- The major symptom I have found in all the patients is pain. Along with that 11 patients had burning micturition, 9 patients had haematuria and 4 patients had dysuria.
- It was found that, in 30 patients of group A total 45 number of calculus noted, out of which 37 calculi were found in kidney and 8 calculi in ureter. Out of 37 kidney stones of group A, 31(84%) are expelled out and size

of 6(16%) stones are reduced, whereas all the ureteric calculi were expelled out.

- In 30 patients of group B, total 56 numbers of calculi were noted. Out of which 47 were in kidney and 9 in ureter. Out of 47 kidney stones of group B, 20(42.5%) expelled out and size of 22(47%) stones reduced, 2 stones remained unchanged, size of one stone increased and even 2 new calculi formed. All the ureteric calculi expelled out.
- Out of 2 patients from group B there was incidence of newly formation of stones. This may be due to investigational error or because of poor water intake during the treatment of *Kshar parpati* which may cause super saturation of urine.
- It is observed that, *Badarashma pishti* and *Kshar parpati* both are effective in management of *Mutrashmari*.
- *Badarashma pishti* is more effective than *Kshar parpati* in management of *Mutrashmari*.
- Small sized calculus easily expelled within duration of 45 days.
- Large sized calculus reduced in its size but require increasing the duration of treatment to expel out completely.
- *Kshar parpati* having diuretic property more than that of *Badarashma pishti*.
- *Badarashma pishti* more effective in chemo lysis and expulsion of calculus.
- Both drugs may have anti-inflammatory property.
- The drugs in combination will give better results.
- Use of *Ashmarihar kwath* or any *mutral kwath* as *Anupan* may enhance the action of drugs.
- No adverse effect or complications were observed during the course of treatment.

- In acute condition *Kshar parpati* is effective in relieving pain.

#### **Probable mode of action of *Badarashma pishti*:**

- Though *Badarashma pishti* is called *ashmarighna* in many Unani and Ayurvedic texts, the exact mode of action is not explained anywhere.
- *Rasa dravyas* are *vyadhipratyanik*. Action of *Rasa dravyas* is not due interference in *dosha* and *dushya*. It acts directly on disease.
- *Badarashma* is a *parthiv dravya*. The action of *parthiv dravya* is due to its *khar guna*. As the action of *khar guna* is *lekhan*, *Badarashma* disintegrates the stone and expelled out due to its *mutral* action.
- *Shodhan* of *Badarashma* is done in *Mulak swaras*. *Mulak* is *Kshariya dravya*. It enhances the *chhedan* and *Bhedan* properties of *Badarashma*.
- *Bhavana* with *Gulab jal* is given in the *pishti* formation. Due to *sheet guna* of *gulab* it soothes the urinary tract and improves burning micturition.

#### **Probable mode of action of *Kshar parpati*:**

- On the basis of the subjective and objective parameters, *Kshar parpati* is found effective to minimise the symptoms of *mutrashmari*.
- *Kapha* and *Vata* plays major role in the formation of *Mutrashmari*. As *doshaghnata* of *Kshar parpati* is *Kaphavataghna*, its action is to normalise vitiated *doshas*.
- *Laghu*, *ruksha guna* of *Kshar parapti* reduces the chances of nidus formation as well as growth of stone.
- *Ksharan* action of *Kshar parpati* helps in eroding *ashmibhut kapha*.
- *Kshar parpati* have *mutral* and *anuloman* as well as *ashmarighna* property which helps in reducing hydronephrosis and hydroureter.

- *Sheeta guna* of *Kshar parpati* gives soothing effect to urinary tract resulting in reducing burning micturition.
- Due to soothing effect and *mutral* property it is effective in dysuria.
- *Kshar parpati* acts as a diuretic, so along with that more water intake is required, otherwise dehydration may occur, resulting in super saturation of urine.
- ❖ Further detailed in vitro and in vivo studies should be needed discovering the mechanism of action of *Kshar parpati* and *Badarashma pishti*.
- ❖ The clinical studies involving a larger population of patients will be necessary to fully explain and confirm the results obtained in the present study.

## CONCLUSION

The drugs, *Badarashma pishti* and *Kshar parpati* both are effective in management of *Mutrashmari*. *Badarashma pishti* is more effective than *Kshar parpati* in management of *Mutrashmari*. Small sized calculus easily expelled within duration of 45 days. Large sized calculus reduced in its size but require longer duration of treatment to expel out completely. *Kshar parpati* is having diuretic property more than that of *Badarashma pishti*. *Badarashma pishti* is more effective in disintegration and expulsion of calculus. Both drugs may have anti-inflammatory, analgesic property. The drugs in combination may give better results. No adverse effect or complications were observed during the course of treatment.

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