



## Research Article

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### CLINICAL EFFICACY OF SHIGRU KWATHA IN MANAGEMENT OF MUTRASHMARI (UROLITHIASIS)

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#### ABSTRACT

Mutrashmari is one of the most common diseases of Mutravahasrotas. In Ayurveda, Mutrashmari is considered as Astamahagada (eight type of grave disease mentioned by Sushruta). Clinical features of Mutrashmari explained in various Ayurvedic text resembles of Urolithiasis in modern science. In Ayurveda various conservative medicine are mentioned for the management of mutrashmari with less side effect, easily available, cost effective and minimum recurrences of stone formation. The study was conducted at Department of Shalya Tantra, Yashwant Ayurvedic College and PG Institute Kodoli, Kolhapur, Maharashtra. For assessment of result patients were investigated by USG and X-ray KUB. Clinical features like pain, burning micturition, dysuria, tenderness, haematuria, pyuria and strangury, size and site of stone were also used for analysis of result. Patient's routine blood and urine examination were carried out. Shigru kwatha has significant role in the management of mild to moderate sized urolithiasis and also give immediate relief to associated feature.

**Keywords:** Mutrashmari, Urolithiasis, Management, Hematuria, Strangury.

#### INTRODUCTION

Ashmari comprises of two words 'Asma' and 'Ari'. 'Asma' means stone or a gravel and 'ari' means enemy. Ashmari is a disease in which there is formation of stone, exerting great suffering to human being like an enemy.

Ayurveda has considered Ashmari mainly as 'Mutrashmari' (Urolithiasis), which is emerging as a sequel to deranged Mutra Pravrutti leading to deterioration in urine zztion and micturition. The only rational treatment for this condition is surgical removal or lithotripsy of the stone, even the smaller stone which are left untreated in a hope of expulsion doesn't get expelled always rather they increase in size. Even in present advanced era repeated surgeries are inevitable for many patients due to recurrence of the disease. Medical management of urolithiasis is still a challenge to medical field.

In Ayurveda various modalities of treatment has been mentioned. Sushruta had described both medical and surgical management of mutrashmari. Sushruta, Charaka and Vagbhata had mentioned use of Shigru in various forms for treatment of Mutrashmari.

#### Aim and Objective

- To study the effect of Shigrukwatha in management of Mutrashmari with special reference to urolithiasis.
- To compare the efficacy of Shigrukwath and with oral therapy/flush out therapy (Hydrotherapy) in the management of mutrashmari with special reference Urolithiasis.
- To study etiopathogenesis of Mutrashmari and Urolithiasis.

#### MATERIAL AND METHODS

Group A- (Trail Group): This group was treated with Shigru Kwatha in a dose of 45 ml. twice daily, after food for a period of 45 days.

Group B - (Control Group): This group was treated with oral liquid therapy and if patient is unable to take fluids orally then it was administered from IV route known as Hydrotherapy. Drinking water as much as 2 to 3 quarts (1.9 to 2.8 liters) a day may help flush out your urinary system.

Patient of both groups were advised for a follow up on every fifteen days (2 weeks) for 3 times, during treatment.

#### Root of Shigru

The extracted root of shigru was made yavakutachurna in rasashala of Yashwant Ayurvedic College Kodoli, Kolhapur. Sachets containing 20 grams of shigru root was prepared.

#### Preparation of Shigru root kwatha

To prepare kwath, 20 grams of shigru root yavakutachurna is boiled in 320 ml of water till 1/8th part of water, i.e. 40 ml remains. Then kwath is filtered. Patients were advised to take the kwatha in lukewarm condition. In patients aged below 15 years doses were reduced to half.

**Oral Fluid Intake:** 2 Liters to 2.5 Liters of water per day.

#### Flush out therapy

Flush out therapy i.e. hydrotherapy in which fluid is administered through Intravenous Route. That helps to expel out the stone. Fast infusion of about 1.5 to 2 liters and injection frusemide is 60 to 80 mg.

#### Materials

IV stand, IV set, scalp vein needle, Spirit swab, adhesive plaster strips and IV fluid bottle- NS 0.9%.

## Procedure

Wash hands prepare equipment ANTT. Remove the cannula from the packaging and check all parts are operational. Loosen the white cap and gently replace it. Apply tourniquet. Identify vein. Clean the site over the vein with alcohol wipe, allow drying. Remove tourniquet if not able to proceed. Put on non-sterile gloves. Re-apply the tourniquet, 7-10 cm above site. Remove the protective sleeve from the needle taking care not to touch it at any time. Hold the cannula in your dominant hand, stretch the skin over the vein to anchor the vein with your non-dominant hand (Do not re palpate the vein). Insert the needle (bevel side up) at an angle of 10-30° to the skin (this will depend on vein depth.) Observe for blood in the flashback chamber. Lower the cannula slightly to ensure it enters the lumen and does not puncture exterior wall of the vessel. Gently advance the cannula over the needle whilst withdrawing the guide, noting secondary flashback along the cannula. Release the tourniquet. Apply gentle pressure over the vein (beyond the cannula tip) remove the white cap from the needle. Remove the needle from the cannula and dispose of it into a sharps container. Attach the white lock cap. Secure the cannula with an appropriate Dressing Flush the cannula with 2-5 ml 0.9% Sodium Chloride or attach an IV giving set and fluid.

**Dosage:** 2 L 0.9 % saline over 4 hours.

## Method

Total 40 diagnosed patients of Mutrashmari were undergoing this clinical trial. Patients subjected to clinical trial were selected from OPD and IPD of shalya tantra department of Yashwant Ayurvedic College and PG Institute, Kodoli, Kolhapur after subjecting to selection criteria based on Inclusion and Exclusion Criteria. The selection of cases was done on bases of clinical presentation and the diagnosis was established accordingly. The patients were selected in two group's with 20 in each.

Study is carried out as per International conference of Harmonization-Good Clinical Practices Guidelines (ICH-GCP) or as per Declaration of Helsinki guidelines.

## Inclusion criteria

- Patients of either sex, age 18-65 years.
- Single or Multiple calculi having size less than or equal to 6 mm each in any part of urinary system.
- Patients who are not interested to undergo for surgery and those who are unfit for surgical intervention.

## Exclusion criteria

- Calculi size more than 6 mm.
- Pyelonephritis.
- Patients with known metabolic/endocrinal disorder favoring calculus formation.
- Patient with impaired renal function or any severe complication, Patients with evidence of malignancy patient with poorly controlled diabetes mellitus.
- Patients on prolonged (> 6 weeks) medication with corticosteroids, antidepressant, anti-cholinergic etc. or any other drug that may have influence on the outcome of the study.
- Patients with concurrent serious hepatic disorders.
- Patients with severe pulmonary dysfunction.

## Subject withdrawal criteria

- Voluntary withdrawal by the research subject with or without information, uncooperative patient, complication of the procedure or appearance of any ailments during the trial requiring medical or surgical intervention.
- Missed follow up: 3 follow ups at every 15 days interval were made mandatory.

## Criteria of assessment

The effect of treatment was assessed in relation to improvement in overall clinical signs and symptoms on the basis of grading and scoring system. Based on various investigations like urine, blood, biochemical Examination, x-ray (K.U.B), U.S.G. (K.U.B) done before and after the treatment.

## Subjective criteria

On the basis of symptoms of the disease Mutrashmari-Urolithiasis

### Pain

- No Pain – 0
- Occasional Pain requiring no treatment – 1
- Occasional pain require treatment – 2
- Contrast dull pain, require treatment – 3
- Contrast severe pain, require treatment but did not show any relief - 4

### Burning Micturition

- No Burning micturition - 0
- Occasional burning micturition, require no treatment – 1
- Occasional burning micturition, which require treatment – 2
- Constant burning micturition, require treatment – 3
- Constant severe burning micturition, require treatment but did not show any improvement – 4

### Dysuria

- No dysuria – 0
- Occasional dysuria, require no treatment -1.
- Occasional dysuria, require treatment – 2.
- Constant dysuria, require treatment – 3.
- Constant severe dysuria, require treatment but not shown any relief – 4.

### Tenderness

- No tenderness -0
- Mild tenderness -1
- Moderate tenderness -2
- Severe tenderness – 3
- Very severe tenderness – 4.

### Hematuria

- No Hematuria – 0.
- Occasional Hematuria, require no treatment – 1.
- Occasional Hematuria which require treatment – 2.
- Constant Hematuria, require treatment - 3.
- Constant severe Hematuria, require treatment but not shown any relief – 4.

## Pyuria

- No Pyuria – 0.
- Occasional Pyuria, require no treatment – 1.
- Occasional Pyuria which require treatment – 2.
- Constant Pyuria, require treatment – 3.
- Very severe Pyuria – 4.

## Objective criteria

### Size of stone

- Was assessed by USG every week in mm.
- Grade 0 (good): More than 50% of decrease in size;
- Grade 1 (fair): In between 25% to 50% of decrease in size;
- Grade 2 (Poor): Less than 25% of decrease in size;
- Grade 3 (no response): No change in size.

**Site of Stone:** was assessed under USG guidance and graded as follows.

- Grade 0: Expelled.
- Grade 1: Stone in Bladder.
- Grade 2: Stone in ureter.
- Grade 3: Stone in renal pelvis.

**PH of urine:** was assessed by biochemical examination of urine.

**Blood urea:** was assessed by routine urine examination.

**Serum creatinine:** was assessed by routine urine examination.

**X-ray KUB:** was assessed before treatment and after treatment and was presented with Present (1) absent (0).

**USG:** was assessed before treatment and after treatment and was presented with Present (1) absent (0).

## Assessment of result

For the purpose of the assessment of result we have used some grade points considering the severity of different signs and symptoms and clinical assessment of result was done as:

- **Cure:** 100 % free from cardinal signs and symptoms (Pain, Burning micturition, Dysuria, Tenderness, Hematuria, Pyuria).
- **Maximum improvement:** 75 % to 99 % improvement of the above-mentioned cardinal signs and symptoms.
- **Moderate Improvement:** 50 % to 75 % improvement of the above-mentioned cardinal signs and symptoms.
- **Mild Improvement:** 25 % to 50 % improvement of the above-mentioned cardinal signs and symptoms.
- **No improvement:** Less than 25 % improvement of the above-mentioned cardinal signs and symptoms.

## OBSERVATION AND RESULTS

All the patients were advised to take similar dietary regimen. The duration of treatment was 45 days. The clinical assessment was done in every 15<sup>th</sup> day's interval. The initial finding was done through clinical, pathological and radiological statements were compared with the result of progressive 15<sup>th</sup> day, 30<sup>th</sup> day and 45<sup>th</sup> day and so on of investigations. Grading and grouping were done according to the assessment criteria concerned to each item categorically differentiated the findings among the patients in the clinical study. And finally, the assessment as a whole was presented in percent value. In order to present the study in scientific manner the statistical assessment of the result were assessed of result mean and + S.D of each sign and symptom before treatment was compared with mean and + - S.D value of after treatment, t-test was used for the purpose of the test of significance the effectiveness Shigru Kwatha and was assessed through p-value (Table 2-4) (Figure 1).

**Table 1: Demographic observations of total registered patients**

Observation	Predominance	Percentage
Age	30-39 and 40-49	35.33 %
Sex	Male	71.33 %
Religion	Hindu individuals	74.66 %
Habitat	Urban area	65.33 %
Marital status	Married	72.33 %
Educational status	Higher secondary	43.33 %
Socio-economic status	Lower middle class	54.33 %
Occupation	Service	44.33 %
Dietary habits	Mixed	74.33 %
Site of the Stone	Ureteric	50 %

Table 2: Effectiveness of drug in Group- A

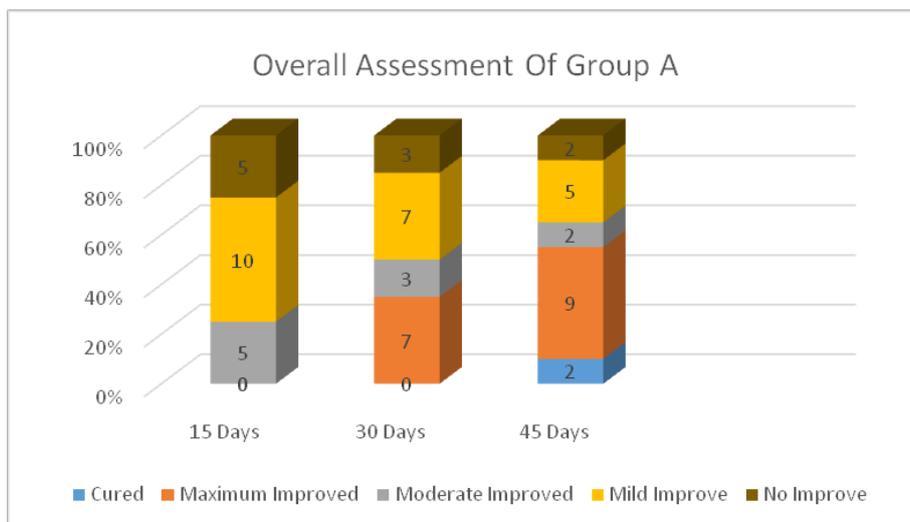
Signs/ Symptoms	Mean +_ S.D			Df	p-value	t-value	Effectiveness %	Remark
	B.T	A.T1	A.T2					
Pain	B.T	A.T1	1.4 + 0.8207	19	< 0.01	1.5916	65 %	N.S
	1.8 + 0.7677	A.T2	0.95 + 0.7591		< 0.01	3.5206	76.25 %	S
		A.T3	0. + 0.5026		< 0.01	6.8227	90 %	S
Burning Micturition	B.T	A.T1	2.1 + 0.7880		< 0.01	1.8391	47.5 %	N.S
	2.55 + 0.7591	A.T2	1.35 + 0.8127		< 0.01	4.8254	66.25 %	S
		A.T3	0.55 + 0.6048		< 0.01	9.2150	86.25 %	S
Dysuria	B.T	A.T1	1.6 + 0.9947		< 0.01	1.7070	47.5 %	N.S
	2.1 + 0.8522	A.T2	1.2 + 0.8944		< 0.01	3.2578	70 %	S
		A.T3	0.65 + 0.8127		< 0.01	5.5064	83.5 %	S
Tenderness	B.T	A.T1	2 + 0.7254		< 0.01	1	50 %	N.S
	2.25 + 0.8506	A.T2	1.5 + 0.7608		< 0.01	2.9387	62.5 %	S
		A.T3	0.6 + 0.5982		< 0.01	7.0952	85 %	S
Hematuria	B.T	A.T1	0.7 + 0.8645		< 0.01	1.9386	82.5 %	NS
	1.3 + 1.0809	A.T2	0.42 + 0.4285		< 0.01	3.2154	88.75 %	S
		A.T3	0.2 + 0.4103		< 0.01	4.2546	95 %	S
Pyuria	B.T	A.T1	1.08 + 1.6500	< 0.01	2.1284	38.75 %	NS	
	2.32 + 0.9880	A.T2	0.85 + 0.8127	< 0.01	5.2432	78.75 %	S	
		A.T3	0.3 + 0.4701	< 0.01	8.3782	92.5 %	S	
Size of stone	B.T	A.T1	1 + 0.7947	< 0.01	0.5125	75 %	NS	
	1.15 + 1.0399	A.T2	0.75 + 0.7863	< 0.01	1.3719	81.25 %	S	
		A.T3	0.25 + 0.4442	< 0.01	3.5590	93.75 %	S	
Site of Stone	B.T	A.T1	1.45 + 0.9986	< 0.01	0.5189	63.75 %	NS	
	1.6 + 0.8207	A.T2	0.9 + 0.7880	< 0.01	2.7512	77.5 %	S	
		A.T3	0.45 + 0.6048	< 0.01	5.0443	88.75 %	S	
Number	B.T	A.T1	1.15 + 0.6708	< 0.01	1.2438	61.67 %	NS	
	1.4 + 0.5982	A.T2	0.8 + 0.6155	< 0.01	3.1259	73.34 %	S	
		A.T3	0.65 + 0.5871	< 0.01	4.0014	78.34 %	S	

S. D. - Standard deviation, B. T. - before treatment, A. T - after treatment, df - degree of freedom, t-test of significant, p - probability, s - significant, N. S.- Non significant

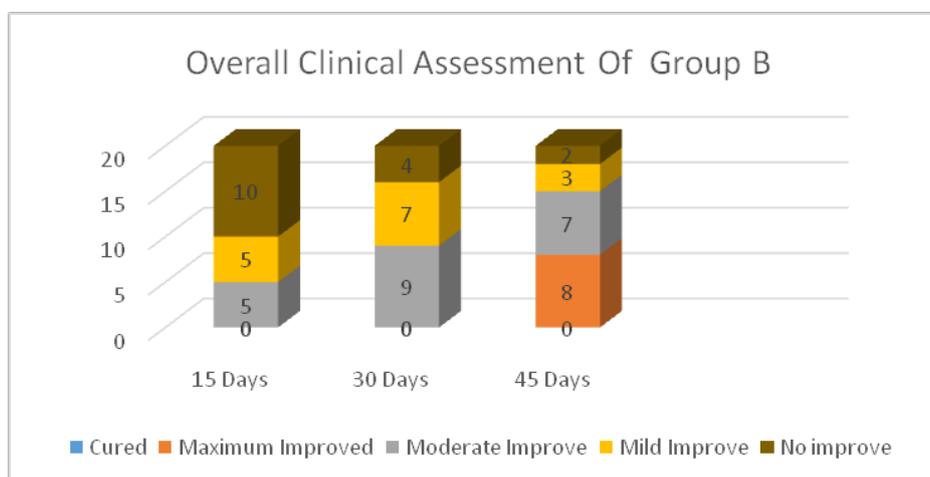
Table 3: Effectiveness of drug in Group-B

Signs/ Symptoms	Mean +_ S.D			Df	p-value	t-value	Effectiveness %	Remark
	B.T	A.T1	A.T2					
Pain	B.T	A.T1	1.35 + 1.0894	19	< 0.01	1.8733	66.25 %	N.S
	1.85 + 1.2680	A.T2	0.8 + 0.8335		< 0.01	3.0945	80 %	S
		A.T3	0.4 + 0.5982		< 0.01	4.6250	90 %	S
Burning Micturition	B.T	A.T1	1.9 + 1.0711		< 0.01	0.8918	53.75 %	N.S
	2.2 + 1.0566	A.T2	1.15 + 0.9880		< 0.01	3.2464	71.26 %	S
		A.T3	0.65 + 0.8127		< 0.01	5.2010	83.75 %	S
Dysuria	B.T	AT1	1.8 + 0.9514		< 0.01	1.2583	55 %	NS
	2.2 + 1.0563	AT2	0.85 + 0.8127		< 0.01	4.5299	78.75 %	S
		AT3	0.35 + 0.4893		< 0.01	7.1068	91.25 %	S
Tenderness	B.T	AT1	2.35 + 1.0894		< 0.01	0.4240	43.75 %	NS
	2.5 + 1.1470	AT2	1.9 + 1.0208		< 0.01	1.7474	52.5 %	S
		AT3	1.05 + 0.8255		< 0.01	4.5883	73.5 %	S
Hematuria	B.T	AT1	1.6 + 0.6805		< 0.01	1.8898	60 %	NS
	2.1 + 0.9679	AT2	1.05 + 0.6863		< 0.01	3.9574	73.75 %	S
		AT3	0.6 + 0.5982		< 0.01	5.8954	85 %	S
Pyuria	B.T	AT1	1.5 + 0.8750	< 0.01	2.6173	71.26 %	S	
	1.95 + 1.0500	AT2	0.5 + 0.6069	< 0.01	2.9428	85 %	S	
		AT3	0.25 + 0.4442	< 0.01	6.8766	93.75 %	S	
Size of stone	B.T	AT1	1.45 + 0.8870	< 0.01	2.0708	62.5 %	S	
	2.05 + 0.9445	AT2	0.75 + 0.6386	< 0.01	5.0990	81.25 %	S	
		AT3	0.45 + 0.5104	< 0.01	6.6648	88.75 %	S	
Site of Stone	B.T	AT1	1.2 + 1.0563	< 0.01	1.2864	70 %	NS	
	1.7 + 1.3803	AT2	0.75 + 0.7863	< 0.01	2.6743	81.25 %	S	
		AT3	0.35 + 0.4893	< 0.01	4.1225	91.25 %	S	
Number	B.T	AT1	1.15 + 0.7451	< 0.01	1.8984	71 %	NS	
	1.6 + 0.7539	AT2	0.9 + 0.7181	< 0.01	3.0064	77.5 %	S	

S. D. - Standard Deviation, B.T - before treatment, A.T - after treatment, df - degree of freedom, t - test of significant, p - probability, s - significant, N. S.- non significant



Overall clinical assessment of Group A



Overall clinical assessment of Group B

Table 4: Overall clinical assessment of result

Result	Group- A			Group-B		
	15 Days	30 Days	45 Days	15 Days	30 Days	45 Days
Cured	0	0	2	0	0	0
Maximum Improve	0	7	9	0	0	8
Moderate Improve	5	3	2	5	9	7
Mild Improve	10	7	5	5	7	3
No Improve	5	3	2	10	4	2

## DISCUSSION

From the present study it becomes evident that the urological problem is an important part of medical deliberation. Perhaps, this can be the reason for detailed description of the urinary systems related disease i.e. Mutrashmari (Urolithiasis) in our Ayurvedic texts. Old literature gives a clear idea of the disease that it has come into existence from the very beginning of human era. In Ayurveda madhura (sweets) and guru (heavy for digestion) diets and hot climates are main cause for formation of Ashmari (stones).

As this can be understood hypothetically with the present contemporary science that these types of food may reduce the solubility crystals in the urine, this may lead into precipitations and formation of the stone. Whereas in Modern Science they have

considered many causative factors for stone formation, but stone has been seen in those patients also, where these factors are absent. So in total, the etiology of the disease is still unknown.

All cases were analyzed for the incidence of Mutrashmari in relation to age, sex, socio-economic status etc.

In the present series of observation, it was found that 35.33 % of patients were in the age group 30-39 years and 35.33 % in the age group 40-49 years. This indicates that the incidence is higher in 3rd and 4th decade of life. Excessive work and by the excessive sweating leads to decrease in urine output in turn helps for the formation of stone. The incidence of mutrashmari was relatively more in males (71.33 %) than in females (29.66 %) in the present study and the ratio was almost 2:1. The incidence of calculogenesis will be same in female compared to men after

menopausal age, as citrates are not secreted during menstrual cycle and after menopause.

On observing the distribution of incidence among Hindu, Muslim and Christians, the prevalence was seen in Hindus (74.66 %), Muslims (20.44 %) and then Christians (7 %). This percentage is synchronous with their general percentage in the population. People of any community appear to be equally susceptible to the disease. Incidence of socio-economic status shows predominance of Lower middle class (54.33 %). It will indicate that there is no any particular socio-economic status for stone formation.

Shigru contains physiologically active principles that have been shown to be effective in a broad range of health needs. For example, it contains "Pterygospermin", an antibiotic-like substance. It is widely used to treat urinary disorders like urolithiasis, and it decreases elevated concentration of oxalate, phosphorous and magnesium in renal tissue. Lupeol also possesses antipyretic, analgesic, anti-inflammatory activity.

The effectiveness of the treatment adopted in both the groups in respect to each parameter is tabulated on the basis of the difference between the scores before treatment and after treatment.

#### **Pain**

The effectiveness of Shigru kwatha is 90 % with t-value 6.82 and the level of significance of p-value was < 0.01, which is significant. The effectiveness of Group B is 90 % with t-value 4.62 and the level of significance of p-value was < 0.01 which is significant. It shows that Shigru kwath having the analgesic and anti-inflammatory properties.

#### **Burning Micturition**

The effectiveness of shigru kwatha of Group A was 86.25 % with t-value 9.21 and level of significance of p-value was < 0.01, which is significant. The effectiveness of Group B was 83.75 % with t-value 5.20 and the level of significance of p-value was < 0.01 which is significant. The effectiveness of Shigru Kwatha over group A patients are showing good response to the treatment, because of the effectiveness of the intended drugs over the mutrashmari showing anti-inflammatory, anthelmintic, antiseptic properties.

#### **Dysuria**

The effectiveness of Group A was 83.5 % with t-value 5.50 and level of significance of p-value was < 0.01, which is significant. The effectiveness of Group B was 91.25 % with t-value 7.10 and the level of significance of p-value was < 0.01 which is significant. Administration of fluids causes the increase urine output by this dysuria was subsided so flush out therapy was highly significant than Shigru Kwatha.

#### **Tenderness**

The effectiveness of Group A was 85 % with t-value 7.09 and level of significance of p-value was < 0.01, which was significant. The effectiveness of Group B was 73.5% with t-value 4.58 and the level of significance of p-value was < 0.01 which is significant. The effectiveness of Shigru Kwatha was more than Group B drug because of its good therapeutic properties.

#### **Hematuria**

The effectiveness of Group A was 95 % with t-value 4.25 and the level of significance of p-value is < 0.01, which was significant. The effectiveness of Group B is 85 % with t-value 5.89 and the level of significance of p-value was < 0.01. The effectiveness of Shigru Kwatha over group A patients are showing good response to the treatment, because of the effectiveness of the intended drugs over the mutrashmari showing anti-inflammatory properties.

#### **Pyuria**

The effectiveness of Group A was 92.5 % with t-value 8.37 and the level of significance of p-value was < 0.01, which was significant. The effectiveness of Group B is 93.75 % with t-value 6.87 and the level of significance of p-value was < 0.01. Both of drugs show equal effects as Shigru has anti septic properties and increased output of urine in group B shows improvement.

#### **Objective criteria**

##### **Size of stone**

The effectiveness of Group A was 93.75 % with t-value 3.75 and the level of significance of p-value was < 0.01, which was significant. The effectiveness of Group B is 88.75 % with t-value 6.66 and the level of significance of p-value was < 0.01. It indicates that Shigru Kwatha having the ashmaribhedana property.

##### **Site of stone**

The effectiveness of Group A is 88.75 % with t-value 5.04 and the level of significance of p-value was < 0.01, which is significant. The effectiveness of Group B is 91.25 % with t-value 4.12 and the level of significance of p-value is < 0.01. It was due to stagnation of the urine in the specific area causes the precipitation of crystals by which stone was formed.

##### **Number of stones**

The effectiveness of Group A 78.34 % with t-value 4.00 and the level of significance of p-value was < 0.01, which was significant. The effectiveness of Group B is 83.75 % with t-value 4.20 and the level of significance of p-value was < 0.01. Shigru Kwatha shows improvement and Flush out therapy helps to flow out the calculi.

#### **Overall clinical assessment of result**

Finally, the clinical assessment was carried out on overall results of the effect of Shigru Kwatha on each individual sign and symptoms and collectively presented in the form of cured, maximum improvement, moderate improvement, mild improvement and no improvement. However, it was evident that in Group A 2 patients cured (100 %), 9 had maximum improvement (50 % - 75 %), 2 had moderate improvement (25 % - 50 %), 5 had mild improvement (< 25 %), 2 patients with no improvement.

In Group B, 0 patients cured (100 %), 3 had maximum improvement (50 % - 75 %), 7 had moderate improvement (25 % - 50 %), 6 had mild improvement (< 25 %), 2 patients with no improvement. Shigru Kwatha has significant role in the management of Mutrashmari as majority of patients showed highly significant response.

## CONCLUSION

Following conclusion were drawn after analysis of review (Ayurvedic, Modern and Drug), clinical observation and interpretations on the parameters.

In the observation it was found that, the lithotryptic action of the Shigru Kwatha was showing significant effect. Shigru Kwatha was capable of reducing Pain intensity (90 %) than flush out therapy (90 %). Shigru Kwatha was capable of reducing Burning Micturition (86.25 %) than flush out therapy (83.75 %). Shigru Kwatha was capable of reducing Dysuria (83.5 %) than flush out therapy (91.25 %). Shigru Kwatha was capable of reducing Tenderness (85 %) than flush out therapy (73.5 %). Shigru Kwatha was capable of reducing Hematuria (95 %) than flush out therapy (85 %). Shigru Kwatha was capable of reducing Pyuria (92.5 %) than flush out therapy (93.75 %). Shigru Kwatha was capable of reducing Size of Stone (93.75 %) than flush out therapy (88.75 %). Shigru Kwatha was capable of reducing Site of Stone (88.75 %) than flush out therapy (91.25 %). Shigru Kwatha was capable of reducing Number (78.34 %) than flush out therapy (83.75 %).

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