



A COMPARATIVE CLINICAL STUDY ON THE EFFECT OF INDIGENOUS DRUG WITH SHWETAPARPATI IN THE MANAGEMENT OF MUTRASHMARI IN RELATION TO UROLITHIASIS

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ABSTRACT

Urinary disorders have a specific identity both in modern and Ayurvedic systems of medicine. *Mootrashmari* is one of the commonest diseases of *Mutravaha srotas*. The oldest written reference to this disease is seen in *Samhithas*.

Ashmari is a word termed for those objects resembling a stone. *Acharya Sushruta* described it as one of the *Ash-tamahagada*. He also termed it as 'Yama' because of the intolerable pain. *Acharya Charaka* mentioned *Ashmari* as *Bastimarmashritha Vyadhi*. In contemporary science, it is correlated with Urolithiasis or Urinary calculus.

Vata, *Pitta*, and *Kapha* all three *Doshas* are involved in the *Samprapti* of *Mootrashmari*, therefore understanding the *Samprapti* is essential for the treatment of the disease.

Even though a lot of research has been done in *Ashmari* management, there is still a vast scope to explore new avenues.

A Comparative Clinical Study on the Effect of Indigenous drug with *Shwetaparpati* in the Management of *Mootrashmari* in Relation to Urolithiasis

A case presenting with a classical sign and symptom of *Mootrashmari* was selected. The formulations Indigenous Drug and *Shwetaparpati* were given to Groups A and B. Pain, Dysuria, Haematuria, and Size of the stone were assessed before and after treatment.

Both formulations have shown highly significant results in reducing subjective parameters and objective parameters.

Both Indigenous drugs and *Shwetaparpati* have a statistically significant outcomes.

INTRODUCTION

Ayurveda stresses more upon the normal maintenance of the *Dosha, Dhatu, Mala*, and Pleasant soul, Mind, and Sense organs for health. Any derangement in the above-said factors, which may be due to *Asatmendriyārtha Samyoga, Prajnaparadha, and Parinama*, may lead to unhealthy conditions. *Mutrashmari* is also the resultant factor of such as *Aharaja, and Viharaja Nidanas*.

Ashmari comprises two words, i.e., '*Ashma*' and '*Ari*'. Where *Ashma* means a stone and *Ari* means an enemy. *Ashmari* is a disease in which there is the formation of stone, resulting in severe pain as given by the enemy. Hence it might have been considered as one among the '*Ashtamahagada*'.¹

Mutrashmari (urolithiasis) is a very painful condition with acute onset sometimes unsustainable and may manifest with *Mutrakruchra* (dysuria), *Mutrasanga* (urine retention), *Vrukka shophā* (Hydronephrosis), or renal failure.²

Urolithiasis affects about 2 to 4% of the total population internationally. The incidence is lower in the non-industrialized country. It occurs more frequently in men than in women. Hence, it is the need of the hour to understand the disease and to find the best solution that not only treats the condition but also prevents the disease at primary and secondary levels.

In almost all the Ayurvedic classics *Mutrashmari* has been dealt with in detail in all its aspects such as *Nidanapanchaka, Chikitsa, Sadhyasadyata, and Upadrava*, etc. Here the management of *Mutrashmari* consists of *Nidana Parivarjana* and *Shamana Chikitsa*. Appropriate Ayurvedic management of

Mutrashmari can help in minimizing the incidence and also treating *Mutrashmari* completely.

In Ayurvedic classics, a number of Drugs, have been told in the management of *Mutrashmari*, specially the *Gokshura, Yava, Gorakshaganja, Punarnava, and Shwetaparpati* have got strong action, by the virtue of their Properties like *Mutrala, Ashmarighna, Sothahara*.³ An effort is made here, to validate the economically, easily available formulation in the management of *Mutrashmari*.

MATERIALS AND METHODS:

SOURCE OF DATA:

a) LITERARY SOURCE:^{4,5,6}

All the Ayurvedic classics, Contemporary Ayurvedic literatures, Modern texts, and Internet sources about the disease, Drug, and Procedure were reviewed and documented for the intended study.

b) PHARMACEUTICAL SOURCE:

The formulation of the Indigenous drug was prepared in the pharmacy attached to the Institute.

Shwetaparpati was procured from GMP certified pharmaceutical company.

c) SAMPLE SOURCE:

Patients of *Mootrashmari* were selected irrespective of sex, religion, occupation, and socio-economic status from the outpatient and inpatient Department of Postgraduate studies in Kayachikitsa, Karnataka Ayurveda Medical College and Hospital, Mangalore, and other camps and referrals.

Method of collection of Data

- A clinical survey of patients attending the OPD of the Post Graduate Department of Kayachikitsa, Karnataka Ayurveda Medical College Mangalore, was made and patients fulfilling the criteria

of diagnosis as per the Proforma were selected for the study.

- Clinical evaluation of patients was done by a collection of data through history, physical examination, and laboratory tests.
- A review of the literature was done at the Library of Karnataka Ayurveda Medical College, and from Authentic Research Journals, Websites, Digital Publications, etc.
- The data which were obtained by the clinical trial were statistically analyzed by applying the Unpaired 't-test and One-way Anova test
- The drugs required for the clinical study were Procured and Prepared in the department of Rasa shastra and Bhaishajya kalpana KAMC Mangalore and from Dhootapapeshwara pharmaceuticals.

Inclusion criteria:

- Patients of *Mutrashmari* confirmed by the diagnostic criteria without having any secondary complications.
- Stone size upto 11mm
- Patients are of either sex aged between 16-60

years irrespective of sex, occupation, race, and socio-economic status.

Exclusion criteria:

- Age above 60 years and below 16 years.
- Patients with Hydronephrosis/ Hydro-Uretero nephrosis, Pyonephrosis, and Ureteral stricture.
- Patients who are suffering from Renal failure, Renal Tuberculosis, Glomerulonephritis, Cystic Disease kidney, Renal carbuncle, Peri-Nephric Abscess, Wilm’s tumour, Neoplasms, Renal Cell Carcinoma, Bladder tumour, Benign Prostatic Hyperplasia, Carcinoma Prostate.

Physiological conditions like pregnancy and lactating mother.

Diagnostic criteria: Patients with complaints of

- Renal pain is located over the renal angle, hypochondrium, and lumbar region.
- Colicky pain radiating from the loin to the groin, to the tip of the genitalia (testicles/labia)
- Haematuria
- Dysuria

The diagnosis will be confirmed as per the sonographical findings.

Procedure and Study Design:

| Sample size | 20 patients | 20 patients |
|-------------|--|--|
| Drug | Indigenous drug | Shwetaparpati |
| Dose | the drug in <i>churna</i> form of which <i>Kashaya</i> has to be prepared is 13gms of <i>Kashaya churna</i> in 2 and a half litres of water, boiled for 20mins filtered, and cooled. 2000ml of <i>Kashaya</i> consumed 200ml hourly. | 125mg mixed in 1 glass of lukewarm water and consumed once daily |

The course of Treatment - 15 days

Assessment Criteria:

The assessment was done on the basis of subjective and objective parameters as per the proforma before and after the study.

Subjective Parameter:

- The severity of pain.
- Dysuria (discomfort/pain/burning when urination)
- Haematuria

Objective Parameter: According to Sonographical findings

- Size of the stone.
- Site of the stone
- Dislodging the stone
- Expelling of the stone.

Assessment of result: Detailed proforma was prepared for the assessment of both subjective and objective parameters. The data obtained was analysed

statistically with the Unpaired t-test and One-way Anova test.

Statistical method: The data was entered and coded into the software SPSS (statistical package for social science) version 26 in windows. All the qualitative variables are summarized using frequency and percentages. The data obtained was analysed statistically with an Unpaired t-test and a One-way Anova test.

RESULTS

Showing the effect of complete treatment on *Vedana* among Both group

Table 1

| MEAN | | PAIN BEFORE TREATMENT | PAIN AFTER TREATMENT |
|-----------------|----------------|-----------------------|----------------------|
| GROUP | | | |
| Shwethaparpati | Mean | 3.85 | 1.00 |
| | N | 20 | 20 |
| | Std. Deviation | .366 | .000 |
| Indigenous drug | Mean | 3.90 | 1.15 |
| | N | 20 | 20 |
| | Std. Deviation | .308 | .366 |
| Total | Mean | 3.88 | 1.08 |
| | N | 40 | 40 |
| | Std. Deviation | .335 | .267 |

Among both Group A and Group B before treatment out of 40 subjects 35 subjects were suffering from GRADE 3 pain and 5 subjects were suffering from GRADE 2 pain. After treatment 37 subjects got relief

Coorelation between the group is significant at 0.01 level (2-tailed) hence null hypothesis is rejected.

OBSERVATIONS

The observation gives a detailed descriptive statistical analysis of all the 40 patients suffering from Mutrashmari according to their Age, Sex, Religion, Education, Socioeconomic status, Occupation, Diet, *Prakriti, Lakshanas*

from the pain completely among 2 groups and 3 subjects had GRADE 1 pain.

There is a statistical significance of the difference between before and after treatment in 37 subjects

Showing the effect of complete treatment on *Dysuria* among Both Groups

Table 2

| MEAN | | DYSURIA BEFORE TREATMENT | DYSURIA AFTER TREATMENT |
|-----------------|----------------|--------------------------|-------------------------|
| GROUP | | | |
| Shwethaparpati | Mean | 2.05 | 1.00 |
| | N | 20 | 20 |
| | Std. Deviation | .224 | .000 |
| Indigenous drug | Mean | 2.15 | 1.00 |
| | N | 20 | 20 |
| | Std. Deviation | .366 | .000 |
| Total | Mean | 2.10 | 1.00 |
| | N | 40 | 40 |
| | Std. Deviation | .304 | .000 |

Among 40 subjects from 2 groups, 39 subjects were suffering from GRADE1 dysuria and 1 subject was suffering from GRADE2 dysuria. After treatment

among the Group, no subjects were suffering from Dysuria.

There is statistical significance between before and after treatment in 40 subjects

Showing the effect of complete treatment on Haematuria among Both Group

Table 3

| MEAN | | HEAMATURIA before treatment | HEAMATURIA after treatment |
|-----------------|----------------|-----------------------------|----------------------------|
| GROUP | | | |
| Shwethaparpati | Mean | 2.00 | 1.00 |
| | N | 20 | 20 |
| | Std. Deviation | .000 | .000 |
| Indigenous drug | Mean | 2.00 | 1.00 |
| | N | 20 | 20 |
| | Std. Deviation | .000 | .000 |
| Total | Mean | 2.00 | 1.00 |
| | N | 40 | 40 |
| | Std. Deviation | .000 | .000 |

Among 40 subjects from 2 Groups, 35 subjects were suffering from haematuria GRADE1, and 5 subjects were suffering from haematuria Grade2 before the

treatment. After treatment, no subjects suffering from haematuria among the two groups.

There is a statistical significance of difference before and after treatment among all the subjects

Table 4

| MEAN | | SIZE OF THE STONE before treatment | SIZE OF THE STONE after treatment |
|-----------------|----------------|------------------------------------|-----------------------------------|
| GROUP | | | |
| Shwethaparpati | Mean | 3.40 | 2.10 |
| | N | 20 | 20 |
| | Std. Deviation | .821 | .912 |
| Indigenous drug | Mean | 3.75 | 1.85 |
| | N | 20 | 20 |
| | Std. Deviation | .910 | .671 |
| Total | Mean | 3.58 | 1.97 |
| | N | 40 | 40 |
| | Std. Deviation | .874 | .800 |

A maximum of 15 subjects were having 3-5mm and 5-9mm of stones 6 subjects were having 9mm and above size stones and 4 subjects were having 1-3mm stones. After treatment maximum of 21 subjects were

having 3-5mm stones, 11 subjects were having 0-3mm stones, 6 subjects were having 5-9mm stones, and 2 subjects were having stones above 9mm.

One-way Anova test to show a comparison between two Groups

Table 5

| ANOVA | | Sum of Squares | df | Mean Square | F | Sig. |
|------------------------------------|----------------|----------------|----|-------------|-------|------|
| PAIN BEFORE TREATMENT | Between Groups | .025 | 1 | .025 | .218 | .643 |
| | Within Groups | 4.350 | 38 | .114 | | |
| | Total | 4.375 | 39 | | | |
| PAIN AFTER TREATMENT | Between Groups | .225 | 1 | .225 | 3.353 | .075 |
| | Within Groups | 2.550 | 38 | .067 | | |
| | Total | 2.775 | 39 | | | |
| DYSURIA BEFORE TREATMENT | Between Groups | .100 | 1 | .100 | 1.086 | .304 |
| | Within Groups | 3.500 | 38 | .092 | | |
| | Total | 3.600 | 39 | | | |
| DYSURIA AFTER TREATMENT | Between Groups | .000 | 1 | .000 | . | . |
| | Within Groups | .000 | 38 | .000 | | |
| | Total | .000 | 39 | | | |
| HEAMATURIA BEFORE TREATMENT | Between Groups | .000 | 1 | .000 | . | . |
| | Within Groups | .000 | 38 | .000 | | |
| | Total | .000 | 39 | | | |
| HEAMATURIA AFTER TREATMENT | Between Groups | .000 | 1 | .000 | . | . |
| | Within Groups | .000 | 38 | .000 | | |
| | Total | .000 | 39 | | | |
| SIZE OF THE STONE BEFORE TREATMENT | Between Groups | 1.225 | 1 | 1.225 | 1.630 | .209 |
| | Within Groups | 28.550 | 38 | .751 | | |
| | Total | 29.775 | 39 | | | |
| SIZE OF THE STONE AFTER TREATMENT | Between Groups | .625 | 1 | .625 | .975 | .330 |
| | Within Groups | 24.350 | 38 | .641 | | |
| | Total | 24.975 | 39 | | | |

Coorelation between the group is significant at 0.01 level (2-tailed) hence null hypothesis is rejected.

Urolithiasis is the most common disorder of the urinary tract. The prevalence of Urolithiasis in the gen-

DISCUSSION

eral population is approximately 2 to 4%, the prevalence in men over women approx.3:1 and the recurrence rate in 10 years is about 50%. Acharya Sushruta opines that dietary factors are much more responsible for calculus formation in the urinary tract –*Mootrashmari*. If this problem is not properly attended leads to complete obstruction to the urinary tract and sometimes creates back pressure on the kidney and finally may lead to renal failure also. The present study has been selected on understanding the need for effective formulations to manage the *Mootrashmari*.

DISCUSSION ON PROBABLE MODE OF ACTION OF INDIGENOUS DRUG:

It comprises *Punarnava*, *Gokshura*, *Gorakshaganja*, and *Yava*. Drugs have *Madhura*, *tikta* and *Kashaya* rasa in dominance and have *Laghu*, *ruksha* and *Teekshna guna*. Except for *Gokshura* rest of the drugs have *Ushna Veerya*. They have *Vatashleshmahara*, and *Mutrala* properties, which help in the distingeration of *Ashmari*.

Gokshura and *Gorakshaganja* have *Ashmari Bhedana* property which will break the large calculi into gravels and help them to expel out with *Mutra*. The flushing of gravels is mainly carried over by the *Mutrala* property of the *dravya* used. Hence, they resolve *Sanga* produced by *Ashmari* and makes *Ap-ana Vata Anulomana*.

Gokshura also possesses *Rasayana* property which enhances the structural and functional integrity of the *Mutravaha srotas*.

Vatashleshmahara property mainly acts at the *Doshic* level and prevents the recurrence of *Ashmari*. This has to be confirmed by further follow-up studies.

DISCUSSION ON OBSERVATIONS

Age: Out of 40 patients studied, people between the age of 31 to 40 years are more prone to disease. This might be due to stressful work, irregular dietetics and habits, orientations towards different food, lack of proper regimens in daily routines, and being forced to face many stresses and strainful conditions.

Occupation: Incidence was more among employeeed individuals. It can be attributed to the fact that all

belong to the category of active work, doing a lot of work and not paying attention to their health, eating habits are also not precise and suppressing the natural urges, these factors have been considered as one of the *Nidana* for formation *Ashmari*.

Diet: A maximum number of 32 subjects were mixed and 8 subjects were vegetarian. Intake of an incompatible diet and diet rich in calcium may play an important role in the pathogenesis of the disease.

Prakruti: In both groups, 15 individuals are with *Vatapitta prakruti*, 13 individuals are with *Kaphavata prakruti*, and 12 individuals with *PittaKapha Prakruti*. *Vata* is the main cause for the formation of *Ashmari*, hence it is predominantly seen in *Vatapitta Prakruti* and *Kapha vata prakruti* individuals.

DISCUSSION ON RESULTS:

Response to Pain: Indigenous drugs showed significant results in pain, this may be due to the *Vata-kaphahara* property of the drug. Because *Vata* is the main cause of pain.

Response on Dysuria: Both drugs showed an equal effect in Dysuria. This might be due to the *Mutrala* property present in both formulations.

Response on Haematuria: Both drugs showed a significant effect in the management of Haematuria. This may be due to the *Mutrakruchrahara* property present in both drugs.

Response on size of the stone: This may be due to the *Ashmarighna* property present in *Gokshura* and *Gorakshaganja* present in the formulation.

CONCLUSION

Based on *Nidana Panchaka* and *Chikitsa*, *Mootrashmari* can be correlated to the Urolithiasis of modern science. In the present study, it was observed that *Mootrashmari* was common in the age group of 31 to 40 years, males were more affected than females, more in the middle class, and was more in people with mixed dietary habits who had a habit of less water intake, irregular dietary habits with much intake of animal protein. In urinary calculi, the most common among its signs and symptoms are predominantly pain and it is expressed in a various manners like fixed, colicky, and radiating in dif-

ferent sites. The action of the drug on pain relief was significant with Indigenous Drugs. Patients with dysuria and Haematuria responded well in both groups. Indigenous drugs acted well on stone size reduction.

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