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Original Article

A study on the effect of Nagaradi Kashaya drug on biochemical parameters and clinical symptoms among the patients of *Ashmari* (urolithiasis): A Clinical Trial

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Abstract
Objective: *To study the effect of Nagaradi Kashayadrug on biochemical parameters and clinical symptoms among the patients of Ashmari (urolithiasis).*
Methods: *This was a clinical trial. Patients suffering from silent features of Mutrashmari were included in the study. Nagaradi Kashaya Kwath was administered in the eligible patients full filling the criteria of selection, in the dose of 40ml each twice daily for 1 month. Biochemical parameters and signs and symptoms were assessed before and after treatment.*
Results: *The significant (p=0.001) effect of drug was found only on urea which was 26.80±3.65 before treatment and became 25.20±3.98 after treatment. There was no significant (p>0.05) effect the drug on other biochemical parameters. Low back ache was significantly (p=0.001) decreased from before treatment (70%) to after treatment (66.7%). Intermittent colicky pain was also significantly (p=0.02) decreased from before treatment (56.7%) to after treatment (52.9%). There was significant improvement in most of the symptoms from before treatment to after treatment.*
Conclusion: *It can be concluded that Nagaradi kashaya possesses the properties regarding in relief in sign and symptoms of Mutrashmari which proves that it is an ideal preparation for the management of Mutrashmari. If the duration of trial would have been increased, we might find some positive finding regarding kidney stones too.*
Keywords: *Ashmari, Clinical symptoms, Nagaradi kashaya.*

Introduction

The word urolithiasis can be split as urolithiasis, which means stone in the urinary tract. Urinary calculi is a stone like body composed of urinary salts bound together by a colloid matrix of organic material (most commonly - calcium oxalate and others are calcium phosphate, uric acid, cystine or magnesium ammonium phosphate). It consists of a nucleus around which concentric layers of urinary salts are deposited (Das, 2001).

A relapse rate of 50% in 5-10 year and 75% in 20 year is seen in urolithiasis. It is estimated that 12% of world population experiences renal stone

disease with a recurrence rate of 70-80% in male and 47-60% in female. Renal stones may occur due to metabolic disturbances, infections, hormonal influences, dietary conditions and habits or obstructions in the bladder or kidney or increased excretion of stone forming components such as calcium, magnesium, oxalate, carbonate, phosphate, urate, cystine etc. The major factors are supersaturation of urine with the offending salt and crystallization (Patel et al, 2011).

It can be presumed that the alteration of biochemical quality of urine can help in treatment and prevention of *Ashmari* which can be achieved by quality and quantity of fluid inputs, diet and the constitutional factors. It is treated with medicine if it is recent in origin and requires *Chedana Karma* (excision) if its size is large (Tripathi, 2012).

The present study was conducted on the effect of Nagaradi Kashaya drug on biochemical parameters and clinical symptoms among the patients of *Ashmari* (urolithiasis).

Material and Methods

This was a clinical trial. Patients for the study were selected from the OPD and IPD from Jammu institute of Ayurveda & Research Jammu. Diagnosis is made on the basis of special proforma prepared in relation to Mutrashmari. Patients were monitored regularly and observations were recorded before, during and after the drug schedule.

Patients suffering from silent features of Mutrashmari described in Ayurvedic and Modern texts attending the O.P.D. and I.P.D. of Jammu institute of Ayurveda & Research, Jammu had been confirmed with the help of plain R-ray abdomen and ultrasonogrphy and were selected randomly irrespective of their age, sex, caste religion etc.

Patient below 15 years & above 60 years, calculi measuring more than 8 mm in size, staghorn calculus, severe haematuria, bilateral hydronephrosis, pyelonephritis, diabetes Mellitus, malignancy, renal failure, patients with immediate surgical requirement and acute retention of urine were excluded from the study.

Nagaradi Kashaya Kwath was administered in the eligible patients full filling the criteria of selection, in the dose of 40ml each twice daily for 1 month**.** Biochemical parameters and signs and symptoms were assessed before and after treatment.

Analysis

The results are presented in frequencies, percentages and mean±SD. The Paired t-test was used to compare the continuous variable from before to after treatment. The McNemar's test was used to compare the categorical variables from before to after treatment. The p-value<0.05 was considered significant. All the analysis was carried out on SPSS 16.0 version (Chicago, Inc., USA).

Results

The significant (p=0.001) effect of drug was found only on urea which was 26.80±3.65 before treatment and became 25.20±3.98 after treatment. There was no significant (p>0.05) effect the drug on other biochemical parameters (Table-1).

Low back ache was significantly (p=0.001) decreased from before treatment (70%) to after treatment (66.7%). Intermittent colicky pain was also significantly (p=0.02) decreased from before treatment (56.7%) to after treatment (52.9%). There was significant improvement in most of the symptoms from before treatment to after treatment (Table-2).

Table-1: Effect of drug on biochemical parameters

Biochemical parameters	Before treatment (n=30)	After treatment (n=30)	p-value[1]
Hb (g%)	10.58±1.21	10.59±1.20	0.84
TLC (/cmm)	8260.00±691.12	8273.30±719.16	0.77
Urea (mg/dl)	26.80±3.65	25.20±3.98	0.001*
Creatinine (mg/dl)	0.83±0.11	0.80±0.08	0.08
Uric acid (mg/dl)	5.68±0.85	5.73±0.80	0.35
Calcium(mg/dl)	8.83±0.49	8.81±0.46	0.75
Phosphorous (mg/dl)	3.72±0.42	3.67±0.45	0.32

[1]Paired t-test

Table-2: Effect of drug on clinical symptoms

Symptoms	Before treatment (n=30)		After treatment (n=30)		p-value[1]
	No.	%	No.	%	
Low back ache	21	70.0	14	66.7	0.001*
Intermittent colicky pain	17	56.7	9	52.9	0.02*
Pain increased with jerks / jumping / jolting	16	53.3	8	50.0	0.11
Nausea	17	56.7	9	52.9	0.03*
Vomiting	6	20.0	2	33.3	0.06
Dysuria	6	20.0	2	33.3	0.05
Increased frequency of micturition	18	60.0	9	50.0	0.02*
Burning micturition	11	36.7	0	0.0	-
Fever	1	3.3	0	0.0	-
Hematuria	5	16.7	4	80.0	0.001*

[1]McNemar's test, *Significant

Discussion

Ashmari is considered as one of the Ashtamahagada by Acharya Sushrutha due to its severity , chronicity and fatality. *Mutrashmari* can be correlated with renal calculi according to modern science of medicine.

In a North America survey, 12% of men and 5% of women had experienced a renal stone by the age of 70 yrs (Davidsons Principles and Practice of Medicine, 2006). Calculous disease affects all ages and both sexes but it is 2 to 3 times more common in men than in women, during the 2nd - 3rd decade of life (API Text book of medicine, 2003).

The present study showed effect of Nagaradi Kashaya on biochemical and clinical signs among the patients of *Ashmari.* In a clinical study of Vishal Verma et al (2015), its open clinical trial, total 30 patients were selected randomly and treated with Nagaradi Vati for 90 days. And it's concluded that nagaradivati showed highly significant results in pain, tenderness, and burning micturition, and significant results in pyuria and hematuria.

Sushendra (2012) showed that the overall effect of the therapy after a period of 60 days of treatment showed, marked response in 55% and moderate response was found in 30% in patients of IV group Atreated with Eladiquatha whereas patients of group B treated with Nagaradikashaya showed marked response in 40% and moderate response in 35%. The overall response based on the signs and symptoms in both groups showed statistical significance, but in-between the groups it is statistically insignificant.

Conclusion

It can be concluded that *Nagaradi kashaya* possesses the properties regarding in relief in sign and symptoms of *Mutrashmari* which proves that it is an ideal preparation for the management of *Mutrashmari*. If the duration of trial would have been increased, we might find some positive finding regarding kidney stones too.

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