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ISSN: 2278-4772

Ayurpharm Int J Ayur Alli Sci., Vol. 3, No. 10 (2014) Pages 275 - 281

Research Article

AN OBSERVATIONAL CLINICAL STUDY ON THE MANAGEMENT OF MUTRAKRICHCHRA (LOWER URINARY TRACT INFECTION)

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Received: 10-09-2014; Revised: 24-10-2014; Accepted: 28-10-2014

Abstract

Mutrakrichchra is one of the prime disease affecting mutravaha srotas (urinary system) involving the basti marma (bladder). The symptoms of different types of Mutrakrichchra particularly Pittaja Mutrakrichchra are similar to signs and symptoms of Lower urinary tract infection (LUTI). Urinary Tract Infections (UTI) are serious health problems affecting millions of people each year. Among all infections, Infection of the urinary tract is 2nd most common type of infections. It is estimated that about 9.6 million people are seeking medical advice each year for the same problem. Women are especially prone to UTI. The management of UTI is by antibiotics. Even though they are useful, they involve considerable amount of risk and at the same time the infective organism develops resistance to drugs. Considering this situation it is relevant to search for an alternative management, which is both effective and economical. Various measures are described in Ayurveda for the management of Mutrakrichchra. Hence this study was taken up for the effective management of Mutrakrichchra vis-à-vis LUTI. Present study was conducted on 40 patients who were administered with the combination of gokshura churna, pashanabhedadi kashaya and shweta parpati for the duration of 15 days. Out of 40 patients 23 (57.3%) got complete relief and 17 (42.5%) got marked relief from the parameters considered for the assessment of result which was statistically highly significant with P value 0.000.

Keywords: Lower urinary tract infection, Gokshura churna, Pashanabhedadi kashaya, Shweta parpati

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Cite This Article

Priya Bhat, Gajanana Hegde. An observational clinical study on the management of Mutrakrichchra (Lower Urinary Tract Infection). Ayurpharm Int J Ayur Alli Sci. 2014;3(10):275-281.

www.ayurpharm.com
ISSN: 2278-4772
Ayurpharm Int J Ayur Alli Sci., Vol. 3, No. 10 (2014) Pages 275 - 281

INTRODUCTION

Mutrakrichchra is the disease of mutravaha srotas characterised by difficulty in micturition.[1] The symptoms of different types of Mutrakrichchra particularly Pittaja Mutrakrichchra are similar to signs and symptoms of Lower urinary tract infection. UTI is defined as multiplication of organisms in the urinary tract. It is usually associated with the presence of neutrophils and > 10^5 organisms/ml in a midstream sample of urine (MSU). When the infection is restricted to the lower urinary tract i.e. urethra, bladder and prostate then it is called as Lower urinary tract infection (LUTI).[2] Text books of Ayurveda have explained the symptoms of each type of Mutrakrichchra based on doshic predominance. Prodromal symptoms of Mutrakrichchra are sadahamutra pravrutti (burning micturition), muhurmuhur mutra pravrutti (increased frequency) and vedana in vankshana, medra basti pradesha (suprapubic and scrotal pain).

Urinary tract infections result in 3.6 million hospital visits each year and greater than 100,000 hospital admissions annually.[3] Upto 50% of women have a UTI at some time of their life. The prevalence of UTI in women is about 3% at the age of 20, increasing by about 1% in each subsequent decade. In males UTI is uncommon, except in the first year of life and in men over 60, in whom urinary tract obstruction due to prostatic hypertrophy may occur. UTI causes morbidity and in a small minority of cases, renal damage and chronic renal failure.[4] The management of UTI is by antibiotics. Even though they are useful, they involve considerable amount of risk and at the same time the infective organism develops resistance to drugs. Hence there a need for an alternative line of management this is both effective and safe. In this regard, the study was undertaken to evaluate the combined effect of gokshura churna, pashanabhedadi kashaya and swethaparpati in the management of Mutrakrichchra vis-à-vis LUTI.

MATERIAL AND METHODS

The materials taken for the clinical study were gokshura churna, pashanabhedadi kashaya and shweta parpati. Gokshura churna and ingredients of pashanabhedadi kashaya used for the study were procured and prepared by Abdul pansari shop, Mysore. Ingredients of pashanabhedadi kashaya i.e pashanabheda, trivrut, pathya, duralabha, pushkaramula, gokshura, palasha, shrungataka and karkati beeja were pounded and coarse power was prepared. Fresh kashaya of the same was administered to the patient. The formulation shweta parpati was procured from SDM pharmacy, Udupi. Shweta parpati consists of suryakshara, sphatika and navasagara.

Institutional Ethical Committee Clearance No: 1204201202.

Objective of the study

To evaluate the combined effect of gokshura churna, pashanabhedadi kashaya and shweta parpati in the management of Mutrakrichchra vis-à-vis Lower urinary tract infection (LUTI).

Study design

The patients were incidentally selected from the OPD and IPD of Government Ayurveda Medical College Hospital, Mysore, India. Total 44 patients between the age group of 16 to 70 years, fulfilling the criteria for the diagnosis of the disease were registered for the study. Out of which 4 patients dropped out and the study was conducted on remaining 40 patients who were assigned into single group. Data was collected as per the proforma of the case sheet. The study was an observational with pre and post test design.

Inclusion criteria

- Patients of either sex between the age group of 16-70 years were selected for the study.

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- Patients with the signs & symptoms of Mutrakrichchra like sadahamutra pravritti (burning micturition), vankshana basti medra shula (suprapubic & scrotal pain), muhurmuhurmutra pravritti (increased frequency) along with positive urine microscopy (pus cells ≥ 5) and urine culture with growth of organism ≥ 1 lakh/ml were selected for the study.
- Both fresh and treated cases were selected.
- LUTI in diabetics with RBS ≤ 160 mg/dl were also selected.

Exclusion Criteria

- Patients with Upper urinary tract infection, sepsis and chronic renal failure were excluded.
- UTI in pregnancy was excluded.
- Patients of uncontrolled diabetes were also excluded.

Diagnostic Criteria

Diagnosis was made based on the signs and symptoms of Mutrakrichchra with positive urine microscopy and urine culture.

Investigations

Following investigations were carried out

- Urine microscopy, albumin and sugar were done for all the patients.
- Urine culture was also done for all the patients.
- RBS was done in case of diabetics.

Intervention

In treated cases earlier medications were withdrawn. After withdrawal of earlier treatment, flushout period of 3 days was given and then intervention was started.

For all the patients following treatment protocol was followed-

- Gokshura churna in the dosage of 4gmsTID before food with honey for 15 days
- Pashanabhedadi kashaya in the dosage of 30ml TID before food for 15 days
- Shweta parpati in the dosage of 500 mg TID before food with cold water for 15 days.

Statistical analysis

Data was collected before, during and after treatment. These were analysed by Contingency coefficient test, Chi square test and Descriptive statistics using SPSS for windows software.

Assessment criteria

Subjective Criteria

- Sadahamutra pravritti (burning micturition)
- Vankshana basti medra shula (suprapubic & scrotal pain)
- Muhurmuhur mutra pravritti (increased frequency)

Objective Criteria

Urine microscopy (pus cells ≥ 5)

OBSERVATIONS AND RESULTS

General observation

In the present study maximum of the patients (62.5%) belonged to 41-60 years of age group with more female population (70%) and majority of them were home makers (42.5%). Majority of the patients belonged to urban habitat (87.5%), had primary education, were married (60%) and were belonging to lower middle class (70%).

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Table 1: Showing Gradation Index

Sl. No.	Assessment criteria
Subjective	
	Sadaha mutra pravritti (Burning sensation)
	B0 - No burning sensation
1.	B1 - Mild burning sensation while passing urine.
	B2 - Moderate burning sensation while passing urine.
	B3 - Severe burning sensation while passing urine and burning sensation even after passing urine.
	Vankshana basti medra shula (Supra pubic & scrotal pain)
	P0 - No pain
2.	P1 - Mild pain
	P2 - Moderate pain
	P3 - Severe pain
	Muhurmuhur mutra pravritti (increased frequency)
	F0 - Frequency 4-6d/1-2n
3.	F1 - Frequency 7-10d/3-4n
	F2 - Frequency 11-14d/5-6n
	F3 - Frequency >15d/7n
Objective	
	Urine microscopy
4.	0 - Pus cells <5
	1 - Pus cells ≥ 5

Table 2: Showing the results on sadaha mutra pravrutti

	Duration		
	0^{th}	**7^{th}**	**15^{th}**
No Burning sensation	3	14	37
Mild Burning sensation	5	20	3
Moderate Burning sensation	8	6	0
Severe Burning sensation	24	0	0
Total	40	40	40

Symmetric Measures			
		Value	Approximate Significance
Nominal by Nominal	Contingency Coefficient	0.691	0.000
N of Valid Cases		90	

Table 3: Showing the results on vankshana basti medra shula

	Duration		
	0^{th}	**7^{th}**	**15^{th}**
No Pain	9	17	34
Mild Pain	5	15	6
Moderate Pain	16	8	0
Severe Pain	10	0	0
Total	40	40	40

Symmetric Measures			
		Value	Approximate Significance
Nominal by Nominal	Contingency Coefficient	0.596	0.000
N of Valid Cases		90	

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Table 4: Showing the results on muhurmuhur mutra pravrutti

	Duration		
	0th	**7th**	**15th**
Frequency 4-6d /1-2n	4	6	26
Frequency 7-10d /3-4n	10	19	10
Frequency 11-14d /5-6n	10	12	4
Frequency >15d /7n	16	3	0
Total	40	40	40

Symmetric Measures			
		Value	Approximate Significance
Nominal by Nominal	Contingency Coefficient	0.619	0.000
N of Valid Cases		90	

Table 5: Showing the Results on urine microscopy

	Duration	
	0th	**15th**
Pus cells <5	0	35
Pus cells ≥ 5	40	5
Total	40	30

Symmetric Measures			
		Value	Approximate Significance
Nominal by Nominal	Contingency Coefficient	0.658	0.000
N of Valid Cases		60	

Table 6: Showing overall assessment of intervention

Overall improvement of Treatment	Frequency	Valid percentage
Complete remission	23	57.3
Marked improvement	17	42.5
Moderate improvement	0	0
Mild improvement	0	0
Total	40	100

In the study there were equal number of fresh and recurrent cases and maximum patients (55%) were treated earlier for same complaint. Among the patients registered for study maximum 21(52.5%) patients had no association with other related diseases, while 9 (22.5%) patients had diabetes mellitus, 5 (12.5%) patients had benign prostatic hypertrophy, 3(7.5%) patients had calculi and 1 (2.5%) patient each of bladder diverticulae and neurogenic bladder were observed.

In the study maximum patients (60%) had *E.coli* as the causative organism of LUTI. Majority of them were having the habit of consuming katu amla and lavana rasa (spicy, sour & salty food articles) in excess (52.5%) and were of vatapittaja prakruti (47.5%).

Subjective parameters were assessed before intervention (0^{th} day), during intervention (7^{th} day) and after intervention (15^{th} day), whereas objective criteria was assessed before and after intervention. Effect of therapy on

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ISSN: 2278-4772
Ayurpharm Int J Ayur Alli Sci., Vol. 3, No. 10 (2014) Pages 275 - 281

Mutrakrichchra symptoms showed statistically highly significant result with p value 0.000. The result on urine microscopy also showed statistically highly significant result with P value 0.000. Before intervention, all the 100.0% patients had urine pus cells ≥ 5 before intervention. After completion of intervention, maximum 35 (87.5%) patients had urine pus cells <5 and 5 (12.5%) patients had pus cells ≥ 5. Overall effect of intervention revealed that out of 40 patients 23 (57.3%) got complete relief and 17 (42.5%) got marked relief from the parameters considered for the assessment of results in the study which was statistically highly significant with P value 0.000.

DISCUSSION

In general, females are prone for LUTI and incidence of the disease is more in sexually active persons.[5] The same is observed in the clinical trial. Majority of the patients belonged to lower middle class as people from this group often have poor standards of hygiene and this creates an environment susceptible for infection. Most common causative organism for LUTI is *E. coli*.[6] Majority of the patients registered in the study also had *E. coli* infection. Dietary Habit wise distribution of patients showed that majority of the patients were consuming katu (pungent), amla (sour), lavana (salty) rasa in excess. Excess intake of katu amla lavana rasa is considered as an etiological factor for the manifestation of Mutrakrichchra. This is substantiated by the fact that spicy food articles are considered as irritants for bladder and hence facilitate cystitis.[7]

The reduction in sadaha mutra pravrutti is due to the pitta shamaka property of gokshura (*Terminalia chebula),* sphatika (Potash alum) and ingredients of pashanabhedadi kashaya. The symptom, vankshana basti medra shula is reduced by virtue of vatahara property of gokshura (*Tribulus terrestris),* hareetaki, pashanabheda (*Berginia ligulata)* and pushkaramula (*Inula racemosa)* which are present in the formulation pashanabhedadi kashaya. Also surya kshara (Salt petre) with its ushna (hot potency) and teekshna (sharp) properties alleviates vata dosha and hence there is reduction in vankshana basti medra shula. The drugs gokshura, hareetaki, pashanabheda, pushkaramula and surya kshara alleviate vata dosha and thereby reduce the symptom muhurmuhur mutra pravrutti. The antimicrobial property of gokshura[8] and shweta parpati[9] reduces the infection and hence there is reduction in pyuria. Also the diuretic action of gokshura, sphatika and navasagara (Ammonium salt) flush out the neutrophils present in the urine.

CONCLUSION

The combination of gokshura churna, pashanabhedadi kashaya and shweta parpati are found to be very effective in the management of Mutrakrichchra vis-à-vis Lower urinary tract infection. Pitta vatahara property, mutrala and rasayana property of gokshura churna was proved in this study. Pitta pradhana tridoshahara property and mutrala action of the formulation, pashanabhedadi kashaya was demonstrated in the present study. The study also proved mutrala and antimicrobial property of shweta parpati. Among 40 patients registered for study, 23 (57.3%) patients had complete remission and 17 (42.5%) patients got marked improvement from the intervention selected for the study. Statistically results on all parameters showed highly significant effect at the end of intervention with P value of 0.000.

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Source of Support: Nil Conflict of Interest: None Declared