

Role of certain herbal preparations in the management of Urinary Tract Infection

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ABSTRACT : Urinary tract infection occurs due to the multiplication of micro-organisms in the urinary tract, when body defence mechanisms are decreased. Difficulty during micturition is the chief symptom of it. According to Ayurveda, it is known as 'Mutrakricchra'. In Ashtanga Samgraha, it is included under the Mutra apravrittijanya basti-gata vikara. Various antibiotics used in modern medical science to solve this problem became unsatisfactory due to the limitations of antibiotics and resistance of micro-organisms to it. However, in the present study an attempt has been made to overcome this problem by using the herbal preparations like Pashanabheda (*Bergenea ligulata*) churna and Mutrakricchra hara churna. Results of both the studies are found very encouraging.

Key words : Urinary tract infection, Micro-organisms, Mutrakricchra, Pashanabheda, Manjishtha, Dvipantara Vacha, Apana Vayu, Rasayana.

INTRODUCTION

Urinary tract infection is a common problem now a days because of the changes in the life style of the human beings. Urinary tract infections occur due to the multiplication of micro-organisms in the urinary tract. Most commonly the causative organism is *Escherichia coli*, which is observed in about 80% of the patients suffering from urinary tract infection. However, the other causative organisms may be *Staphylococcus aureus*, *Klebsiella pneumonia*, *Pseudomonas aerogenes*, *Candida albicans* etc¹. Various antibiotics have been used to combat this disease process effectively. But still toxicity of the drugs, resistance to drug and resistant to drug and recurrence of infection, makes the treatment unsatisfactory.

According to Ayurvedic point of view, urinary tract infection is more nearer to the term Mutrakricchra, in which dysuria is the most common feature. Most of the classical Ayurvedic texts describe eight types of Mutrakricchra. Among them only four types of doshaja Mutrakricchra are purely medical problems. Acharya Vagbhata has classified all the urinary disorders into Mutra apravrittijanya vyadhi and Mutra atipravrittijanya vyadhis (A.S.Ni 9)². Mutrakricchra comes under Mutra apravrittijanya vyadhi, in which reduced flow of urine takes place. In this disease difficulty during micturition is the main symptom.

Vitiated Pitta and pratiloma gati of Apana vayu are considered to be the two major factors for the pathogenesis of the disease Mutrakricchra in classical Ayurvedic texts. (Cha. Si. 9/26; Su. Su.15/40; Ka. S.

Mu. Kr. Ci.)^{3,4,5}. Taking these points into considerations and their use by various physicians, the drug Pashanabheda churna, and Mutrakricchrahara churna were selected for the present study, with aim and objective, to study the effect of the selected drugs on Doshaja Mutrakricchra.

Pashanabheda is having mutrakricchra nashaka property. The root is cooling, laxative, analgesic, diuretic, tonic, useful in strangury and fever (Kirtikar and Basu, I.M.P)⁶. Ghose et al (Probe, 1980,19,270-274) have reported successful treatment of urinary tract infections and urinary calculi with cystone, a patent herbal medicine containing drugs viz. *B. ligulata* and *R. cordifolia*⁷.

The drug Mutrakricchrahara churna contains a mixture of Manjishtha (*Rubia cordifolia*), Pashanabheda (*Bergenea ligulata*) and Dvipantara vacha (*Smilax china*) in equal quantities. Manjishtha is having mutrakricchra nashaka, rasayana, jvaraghna, and krimighna properties (R.N.)⁸ and also having diuretic property (I.M.P)⁶. It shows antibacterial activity against *S. aureus* and *E. coli* (Kurup P.A.)⁹. Its hepatoprotective activity has also been reported. (Gilani A.V.H. et al.)¹⁰. Dvipantara Vacha has Mutravishodhaka, Rasayana and Balya properties (B.P.N.)¹¹. It is reported to have diuretic and anti-inflammatory properties (Sashidey et.al., Phytochemistry-1992)¹². These above drugs were observed somewhat effective in irradiating the problem mentioned earlier.

Aims & Objective :

The aim of present study was to study the effect of the selected drugs in Urinary tract infection (Doshaja Mutrakricchra).

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MATERIAL & METHODS

Inclusion criteria : The patients irrespective of their age and sex, presenting with the signs and symptoms of four types of doshaja mutrakricchra viz. pain in basti, vankshana and medhra, svalpa mutrata (scanty micturition), muhurmu mutrata (frequent micturition) and saphena mutrata (frothy micturition) for Vataja mutrakricchra; daha (burning micturition), peeta mutrata (yellow micturition), sarakta mutrata (haematuria) and ushna mutrata (hot micturition) for Pittaja mutrakricchra; and Shotha and gurutva in basti, linga and mushka pradesha (felling of swelling & heaviness), sapiccha mutrata (slimy micturition), shukla mutrata (passing of white urine), bahula mutrata (passing of large amount of urine) and samhrista roma (Horripulation) for Kaphaja mutrakricchra were selected for the study.

Exclusion criteria : Patients presenting with the signs and symptoms of mutrakricchra other than those of doshaja mutrakricchra, were excluded from the study. Patients having severe conditions as well as of benign prostatic hyperplasia, calculus, tumours, tuberculosis of kidney and sexually transmitted diseases were also excluded.

Criteria for diagnosis : Criteria for diagnosis of the patients for the study was presence of clinical signs and symptoms of doshaja mutrakricchra as mentioned under inclusion criteria. The presence of pus cells, epithelial cells, various casts, red cells, presence of albumin and change in the reaction of urine also taken into consideration for confirmation of diagnosis.

Total 14 patients fulfilling the criteria of diagnosis of doshaja mutrakricchra were selected for the present study. They were given treatment in two therapeutic groups viz. i) Pashanabheda churna and ii) Mutrakricchrahara churna containing mixture of Manjishtha, Pashanabheda and Dvipantara Vacha in equal quantities.

Drug	Dose	Duration	Anupana	No. of Pts. Treated
1. Pashanabheda churna	3gms.t.d.s.	30days	Water	7
2. Mutrakricchrahara churna	3gms.t.d.s.	30days	Water	7

All the patients were advised, not to take more heavy, spicy and non-vegetarian diet. Admitted patients were kept on light hospital diet.

Criteria for Assessment :

The improvement of the patients was assessed on the basis of relief in signs and symptoms of the disease and improvement in pathological reports of urine, stool and blood. All the signs and symptoms were given scoring depending upon their severity, to assess the effect of the drugs objectively. Urine culture test was also conducted after the completion of the treatment in few patients.

Scoring Pattern :

1. Pain Score :

- No pain 0
- Occasional bearable pain 1
- Often/ moderate pain 2
- Daily/ troublesome pain, disturbs daily routine and may awake at night 3
- Daily/ severe pain, after / along with every micturition, disturbs daily routine and sleep. 4

2. Burning Score :

- No burning 0
- Occasional mild burning 1
- Often mild burning 2
- Moderate troublesome burning 3
- Severe burning but tolerable 4
- Intolerable severe burning 5

3. Tenderness Score :

- No tenderness 0
- Mild tenderness without any response or pressure 1
- Wincing of face on pressure 2
- Wincing of face and withdrawal of the affected part on pressure 3
- Resists touch due to tenderness 4

4. Turbidity Score :

- Crystal clear fluid 0
- Faintly 'cloudy' or 'smoky' or 'hazy' with slight (barely visible) turbidity 1
- Turbidity clearly present, but newsprint easily read through tube 2
- Newsprint not easily read through tube 3
- Newsprint cannot be seen through tube 4

5. Strangury Score :

- No strangury 0
- Mild strangury 1
- Moderate strangury 2
- Severe strangury 3

6. Hesitancy Score :

- No hesitancy 0
- Occasional mild hesitancy 1
- Often mild hesitancy (for few minutes) 2
- Moderate hesitancy (for 1 to 2 minutes) 3
- Moderate but troublesome hesitancy 4

7. Urgency Score :

- No urgency 0
- Urgency but can control 1
- Urgency but can reach easily to bathroom 2
- Urgency and difficult to control passes few drops of urine in under garments 3

8. Other Symptoms Score :

General symptoms found with the patents of doshaja mutrakrcchra like general debility, anorexia etc. were also taken into consideration. To analyze the result statistically 2 marks were given to each symptom if present, before starting the treatment. 1 mark was given to each symptom improved remarkably after the treatment and 0 mark allotted to the completely relieved symptom. The symptoms showing no remarkable improvement after the treatment were given 2 marks.

Statistical Analysis :

Mean, percentage, S.D., S.E., and *t* values were calculated. Paired *t*-test was used for calculating the *t*-value in the paired data. The total result including overall effect of therapy was present in table in all the four groups.

Criteria for assessment of the over all effect of therapy :

The overall effect of the therapy is assessed in the following manner:

1. *Complete relief* : The 100% relief in the complaints of the patients or negative urine culture along with more than 60% relief in sign and symptoms of the disease.
2. *Marked improvement* : More than 75% relief or more than 50% relief and chief complaint and significant improvement in urine reports.
3. *Moderate improvement* : More than 50% relief in the complaints of the patients.
4. *Improved* : Up to 50% relief of the complaints of the patients
5. *Unchanged* : Less than 25% relief in the complaints of the patients was considered as unchanged.

OBSERVATION & RESULTS

Out of selected 14 patients of Doshaja mutrakricchra, 66.67% patients belonged to 30-50 years of age, 67.70% were male and 32.30% were female, 22.40% were married, 73.30% belonged to lower and middle social economy groups and 38.20% patients were having krura koshta.

TABLE NO. 1 : EFFECTS ON CARDINAL SIGNS AND SYMPTOMS :

Signs & Symptoms	Pashanabheda Churna					Mutrakricchrahara Churna				
	N	Mean score		%	p	N	Mean score		%	p
		B.T.	A.T.				B.T.	A.T.		
Pain	6	2.63	1.67	44.05	<0.05	7	2.57	1.71	33.46	>0.05
Burning Micturition	7	3.86	2.00	44.19	<0.05	7	3.00	1.70	43.00	<0.05
Strangury	5	2.20	1.40	36.36	>0.05	7	1.90	1.30	30.10	<0.05
Hesitancy	7	1.70	0.60	65.05	<0.01	5	2.40	1.80	25.00	>0.05
Frequency/day	7	10.60	8.85	16.20	<0.05	7	10.60	8.60	13.50	<0.05
Urgency	6	1.83	1.00	45.36	<0.05	4	1.50	0.25	83.33	<0.05
Turbidity	7	2.00	1.30	35.50	<0.05	6	2.30	0.83	65.21	<0.01
Tenderness	7	2.00	0.30	85.50	<0.001	7	2.40	1.90	29.60	<0.05
Oliguria	7	2.00	1.00	50.00	<0.05	7	2.00	0.71	64.30	<0.01
Hotness of Urine	7	2.00	1.43	42.85	<0.05	7	2.00	0.71	64.30	<0.01

TABLE NO. 2: EFFECTS ON URINE REPORTS :

Urine Report	Pashanabheda churna			Mutrakricchrahara churna		
	N	B.T. (%)	A.T. (%)	N	B.T. (%)	A.T. (%)
Reaction						
Acidic	07	100	100	05	71.42	100
Alkaline	00	00	--	02	28.57	--
Albuminuria						
Present	02	28.60	28.60	03	42.86	100
Absent	05	71.42	71.42	04	57.14	--
Pus cells						
Nil	--	--	--	--	--	--
Occasional present	01	14.28	42.86	02	28.57	57.14
Packed	06	85.72	57.14	05	71.43	42.86
Epithelial cells						
Present	07	100	85.71	07	100	71.42
Absent	00	00	14.28	--	--	28.57
Bacterial growth						
Present	06	100	100	05	83.33	66.67
Absent	--	--	--	01	16.67	33.33

TABLE NO. 3: OVER ALL EFFECT OF THERAPY :

Over all effect	Pashanabheda churna		Mutrakricchrahara churna	
	No. of patients	%	No. of patients	%
Complete relief	00	00	01	14.28
Marked improvement	00	00	02	28.57
Moderate improvement	2	28.57	02	28.57
Improved	5	71.43	02	28.57
Unchanged	00	00	00	00

DISCUSSION

It is observed from the effect of the drugs on cardinal signs and symptoms that, the patients treated with Pashanabheda churna was best on hesitancy and tenderness with good significance level. Other cardinal symptoms in this group also showed significant effect except frequency of micturition. Urgency was better relieved in Mutrakricchra hara churna group. However, in Mutrakricchra hara churna group, the other cardinal symptoms except hesitancy showed statistically significant effect.

According to urine reports, albuminuria was relieved in Mutrakricchrahara churna group. Both the groups showed better improvement in discharge of pus cells. Improvement from presence of bacterial growth in urine culture test were observed only in the Mutrakricchrahara churna treated group.

Overall effects of both the groups showed that, in Pashanabheda churna treated group 28.57% patients

were moderately improved and 71.43% patients became improved from their conditions after completion of therapy. In Mutrakricchrahara churna treated group, 14.28% patients were completely relieved and 28.57% patients each were markedly improved, moderately improved and improved from their diseased conditions.

CONCLUSION

From the above study it is observed that effect of both the groups are encouraging in the management of Urinary tract infection. However, the sample size is very small and it can be further tried in large samples.

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हिन्दी सारांश

मूत्रकृच्छ्र व्याधि पर आयुर्वेदीय औषधियों का प्रभाव

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जब शरीर में व्याधि प्रतिरोध क्षमता कम होने लगती है तो मूत्र मार्ग में मूत्रसंक्रमण की घटना सूक्ष्म जीवाणुओं के गुणन के कारण बढ़ती है। मूत्र त्याग के दौरान होनेवाली कठिनाई इसका मुख्य लक्षण है। आयुर्वेद के अनुसार यह मूत्रकृच्छ्र के रूप में जाना जाता है। अष्टांग संग्रह के अनुसार इसे मूत्र अप्रवृत्तिजन्य बस्तिगत विकार कहा जाता है। आधुनिक चिकित्सा विज्ञान में प्रयुक्त विभिन्न जीव प्रतिरोधी चिकित्सा इस समस्या को असंतोषजनक रूप से समाधान करती है। वर्तमान अध्ययन में पाषाणभेद चूर्ण एवं मूत्रकृच्छ्रहर चूर्ण के प्रयोग द्वारा इस समस्या को पराभूत करने का प्रयत्न किया गया है। दोनों औषधियों के परिणाम उत्साहजनक हैं।

गुजरात आयुर्वेद युनिवर्सिटी