

A Clinical Study of Mutragrahar Yog in Garbhini Mutragraha W.S.R to Urinary Tract Infections During Pregnancy

Dr. Sandeep Kumar Rajan¹, Dr. Aditi Gautam², Dr. Kamini Dhiman³

¹ Lecturer PG Deptt. of PTSR Sri Sai PG Ayurvedic college aligarh.

² Lecturer , hormony ayu medical college , ferojpur city, punjab

³ Associate professor M.D.,Ph.D (Ayu) P.G. of Deptt.,of PTSR, all india institute of ayurveda delhi.

Abstract

Healthy mother and healthy baby are foremost aims of antenatal care. Progressive anatomical and physiological changes during pregnancy are not only confined to the genital organs however within other systems of the body too, some among them may be felt as discomfort by a pregnant woman. A pregnant woman having pain or burning on micturition, fever with chills, nausea, vomiting and cloudy urine having bad smell can be diagnosed as having Urinary Tract Infection (UTI). UTI is most common bacterial infection encountered during Pregnancy and troublesome to the woman suffering from it. Pyelonephritis, premature delivery and other risk such as PROM, IUGR etc can be the long term result of UTI hence prompt attention is requisite. In the present study Mutragrahar Yog has been tried in 15 patients for evaluation of its clinical efficacy and adverse / side effects if any. It was observed that Mutragrahar Yog showed better results (87% markedly improved and 17% moderately improved). None of the patient reported any adverse effect during or after the treatment.

Keywords: Urinary tract infection, pyelonephritis, premature rupture of membrane, Mutragrahar Yog.

I. INTRODUCTION

Urinary tract infections (UTIs) are the second most common infections in community practice. Incidence of UTI is higher in women than men, 40% to 50% of whom will suffer at least one clinical episode during their lifetime¹.

The increase risk factor for UTI in women may be due to short urethra, absence of prostatic secretions, pregnancy and easy contamination of urinary tract with faecal flora². Approximately 90% of pregnant women develop ureteral dilation, which will persist until delivery³. And it may contribute to increased urinary stasis and ureterovesical reflux. Additionally, the physiological increase in plasma volume during pregnancy decreases urine concentration and up to 70% of pregnant women develop glycosuria,

which is considered to encourage bacterial growth in the urine^{3,4}.

Thus UTIs are the most common bacterial infections during pregnancy, with pyelonephritis being the most common severe bacterial infections complicating pregnancy⁵. Recurrent infection cause considerable morbidity, if complicated, it can cause severe renal disease⁶.

Modern medical management of UTI includes chiefly antibiotics. Use of antibiotics for long time in pregnancy may cause bad effects on growing fetus and presently chance of resistance is high. Due to development of resistance to present day antibiotics there is a need to evaluate new antibiotics which are equally effective. Although a lot of classical references of drugs on Mutrakrichhra^{7,8} are available in Ayurvedic texts. It is imperative for us to prove the antimicrobial properties of the mentioned drug using scientific parameters. Acharya Sushruta⁹ and Acharya Charak¹⁰, has explained Mutrakrichhra under Mutravahastroto DusthiVikar. Symptoms of U.T.I. like Burning Micturition, Abdominal pain, and increased Frequency are same in Mutrakrichhra Vyadhi. The symptoms of Urinary tract infections during pregnancy are nearer to those of mutrakrichhra. In the Ayurvedic texts, Acharya Kashyap have described the treatment of mutrasanga and mutragraha respectively, among the garbhini Vyadhi's. This depicts the importance to observe the symptoms carefully and timely treat the disease. In the routine antenatal check-up, the signs and symptoms of Mutrakrichhra are generally present which are similar to those of U.T.I. So the present study has been taken on Garbhini Mutragraha w.s.r to Urinary tract infections during pregnancy using the Mutragrahar Yog described by Acharya Kashyap in khilasthana¹¹ and to see the drugs in the light of objective as well as subjective criteria if found to be effective. So the study has been taken on "A Clinical Study of Mutragrahar Yog in Garbhini Mutragraha w.s.r to Urinary Tract Infections during Pregnancy".

A. Aims and Objectives

- a) To review the Ayurvedic and modern literature related to Mutragraha w.s.r. to UTI in Garbhini.
- b) To establish the safe and cost effective medicine for the treatment of Mutragraha in Grabhini.
- c) To study the other associated effects of the trial drugs.
- d) To see the effects of formulations on the bacterial count in UTI.

II. MATERIALS AND METHODS

Study had been carried out in a single group. 15 patients were registered from Prasuti Tantra &

MutragrahaYog (K.S.Khi.10/144–145)

Sr. no.	Name	Botanical name	Part used
1	Shatavari	Asparagus racemosaWilld.	Tubereous root
2	Darbhamoola	ImperatacylindricaBeauv.	Moola
3	Madhuk	Glycyrrhizaglabra Linn.	Moola
4	Kshiramorat (peeluparni)	Maeruaarenaria Hook F. and Th.	Moola
5	Pashanbheda	Bergenia ligulata Wall Engl.	Moola
7	Ushira	Vetiveriazanioidis (Linn.) Nash.	Moola
8	Katak	Strychnos potatorum Linn.	Beeja

1) Method of Preparation of Trial Drug

The drugs were prepared in the college pharmacy under the supervision of the subject expert as per the classical methods.

B. Kwatha Kalpana

All the contents of the combination drug were collected, identified dravyaguna deptt., dried in shade and coarse powder (yavkut) was made by taking all the ingredients in equal quantity, 1 pal quantity of coarse powder mixed with 16 times water and boiled at low flame till 1/8th i.e. 2 pala is left. This is called kashaya. It was advised to be taken in divided dosage to the patients.

1) **Synonyms** – Shrit, Kwath, Kashaya, Niriyuh, Decoction.¹²

2) Protocol During Trial

1. Fulfillment of inclusion criteria.
2. Consent of patient after making her aware of the merits/demerits of the trial.

Stri Roga OPD / IPD of hospital affiliated to R.G.G.P.G. Ayu. College & Hospital, Paprola, Dist. Kangra (HP). Before starting the treatment a preliminary screening of the cases was done by applying proforma prepared on the basis of standard norms. Written & informed consent was obtained from all subjects.

A. Trial Drug:

MutragrahaYog mentioned by Acharya Kashayap (10/144 -145) has been selected for the study to evaluate its effect on Garbhini Mutrakrichha w.s.r to UTI during pregnancy. This study has been undertaken to evaluate the effects of yog as antahparimarjanchikitsa.

3. Registration of the patient.
4. Investigations were done before inclusion into the trial.
5. Follow up of the patients for assessment and clinical evaluation.
6. Data so available and deducted clinically was statistically analyzed.

3) Inclusion Criteria

- ❖ Patients presenting with signs and symptoms of mutragraha w.s.r. to UTI.
- ❖ Patients willing for the trial.
- ❖ Patients having pregnancy of 13 to 32 weeks of gestation.
- ❖ Lab. Investigations of urine suggestive of UTI.

4) Exclusion Criteria

- ❖ Polycystic kidneys, Hydronephrosis.
- ❖ Impaired renal functions.
- ❖ Malignancy of urinary tract.
- ❖ Immuno-compromised patients.
- ❖ Pregnancy induced hypertension.

- ❖ Gestational Diabetes.
- ❖ Known c/o Thyroid dysfunction with pregnancy.
- ❖ Any complications during pregnancy like placental abnormalities, polyhydramnios.

5) Dose

The registered patients were given the trial drug i.e. Mutragrahar yog Kwatha in dose of 100ml BD.

6) Trial Group

Total 15 patients were selected for the present study who fulfilled inclusion criteria. All the selected patients were studied in single group. All the 15 patients completed the trial.

- ❖ **Group** - Patients were given Mutragrahar yog Kwath- 100ml. B.D
- ❖ **Mode of Administration** - Oral
- ❖ **Duration of Trial** - 15 days
- ❖ **Follow Up** -

Two follow-up at weekly interval and 1 follow-up after 15 days of drug free Period.

7) Investigations

Routine blood, urine and USG examinations were carried out to rule out any other pathology.

8) Assessment of the Patients:-

Assessment of the effects of therapy was done on the basis, of various subjective and objective criteria. Patients were, assessed after one week of the commencement of clinical trial and after completion of trial i.e. after 15 days. In first follow up, the patients were assessed on clinical grounds only. The patients who did not come for follow up were considered drop out. At the end of 15th days, final detailed examination of the patients was, carried out including all investigations.

9) Assessment Criteria:-

Assessment of clinical features on subjective criteria (sadah mutrata (burning micturition), saruja mutrata (painful micturition), krachhra- mutrata (difficulty in micturition), muhur- muhur mutrata (increased frequency of micturition) urgency, suprapubic pain) and objective criteria (presence of Albumin, Epithelial Cells, Pus Cells, Rbc in urine) was assessed by evaluating already mentioned laboratory findings, which were carried out at the time of commencement of clinical trial. some of these were assessed by grading them and other were assessed by simply evaluating the results obtained from them as follows.

C. Statistical Analysis of Results

The information gathered regarding demographic data was given in percentage. The data related to clinical features and laboratory investigations was collected and then statistically analyzed. The scoring of criteria of assessment was analyzed statistically in terms of mean values of B.T.(Before Treatment), A.T. (After treatment), S.D. (Standard Deviation) and S.E.(Standard Error).The effect of therapy in both the groups was assessed by applying students paired t' test for comparing before treatment & after treatment scores of assessment criteria. For intergroup comparison unpaired t test was applied. Their significance was estimated by means of 't' table on (n-1) degrees of freedom. 't' test was carried out at p <0.05, p <0.01, p <0.001. The obtained results were interpreted as:

- ❖ Insignificant - p < 0.05
- ❖ Significant - p < 0.05 and p < 0.01
- ❖ Highly significant - p < 0.001

D. Total Effect of Therapy

Steps for calculating overall percentage of improvement of individual patient; All the BT score of every symptoms of a patient were added. All the AT score of every symptom of that patient were added. Overall percentage of improvement of each patient was calculated by the formula:

$$\frac{(\text{Total BT} - \text{Total AT})}{\text{Total BT}} \times 100.$$

The obtained results were measured according to the grades given below:

- ❖ Complete Remission : 100% relief
- ❖ Marked Improvement : ≥75% relief
- ❖ Moderate Improvement: 50 % to 75 % relief
- ❖ Mild Improvement : <50 % relief
- ❖ Unchanged : <25 % or No relief

III. OBSERVATIONS AND RESULTS

A total of 15 subjects were registered in the present study, and all the patients completed the trial. 40% were observed in age group of 26 -30 yrs and 26% were observed in age group of 21-25yrs. 53% were observed to be affected at fetal gestational age of 24 -28 weeks, 53% patients were primigavida, 80% patients belonged to rural habitat, 80% were house wives, 20% were in service. 46% patients were educated up to Primary level and 33% patients were illiterate or uneducated. 73% patients were of lower middle class following 27% patients were of lower socioeconomic class. 67% patients were vegetarian & 33% patients were on mixed diet. 60% patients were of Vata-pittaja prakriti, 26% patients were of kapha-Pittaja prakriti and 14% patients were of kaphaja-pittaja prakriti, 46% of patients had decreased appetite, 60% had regular bowel habit and 30% patients had constipation, 40% were

following medium hygiene, 40% of patients had poor hygiene, 73% patients were having samyaka sleep, 20% patients were of decreased (alpa) sleep & 7% were of excessive(ati) sleep, 53% had frequency of micturition 11-20 times/day followed by 33% patients having frequency of micturition of 6-10 times/day and 20% patients were having frequency of micturition more than 21 times/day. Among 15 registered patients 100% had increased frequency of micturition , 93% patients had burning micturition,73% patients had

suprapubic pain, 67% patients had urgency of micturition ,47% patients had difficult micturition and 40% patients had painful micturition. Urine analysis shows that all patients i.e. 100% having yellow coloured and acidic urine , pus cells and epithelial cells. Albumin was observed in patients i.e. 40% , R.B.C. was observed in 20%patients.

A. Effects of the Therapy:

A total of 15 patients were registered for present clinical study. All patients completed the trial.

Effect of Therapy on Clinical Profile of Patients:-

Variables	N	Mean Score		D	%age Relief	±S.D.	±S.E.	't'	'p'
		BT	AT						
Burning Micturition	15	2.66	0.40	2.26	85.00	1.03	0.267	8.50	<0.001
Painful Micturition	8	1.60	0.533	1.06	70.83	1.03	0.267	4.00	0.001
Difficult Micturition	7	1.40	0.33	1.06	76.19	1.28	0.33	3.22	0.006
Frequency of Micturition	13	1.66	0.40	1.26	77.77	1.03	0.267	4.75	<0.001
Urgency	9	1.80	0.53	1.26	70.37	1.10	0.284	4.46	<0.001
Suprapubic Pain	12	2.26	0.46	1.80	79.41	1.01	0,262	6.87	<0.001

Effect of Therapy on Microscopic Findings of Urine:-

Variables	N	Mean Score		D	%age Relief	±S.D.	±S.E.	't'	'p'
		BT	AT						
Albumin	7	1.60	0.467	1.13	70.83	1.54	0.291	3.90	0.002
Pus cells	15	2.26	0.200	2.06	90.32	.96	0.248	8.32	<0.001
Epithelial cells.	15	3.00	0.40	2.60	86.00	.737	0.190	13.66	<0.001
R.B.C	06	1.40	0.33	1.06	76.19	1.22	0.316	3.37	0.005

Overall effect of therapy

Through Grade Score system

RESULT	No.of patients	%age
Completely remission (100% relief)	-	-
Marked improvement (75 to 99% relief)	13	86.66
Moderate improvement (50 to 74% relief)	2	13.33
Mild improvement (< 50% relief)	-	-
unchanged (0% relief)	-	-

Through grade score system, 86.66% patients were markedly improved and 13.33% patients were observed moderately improved.

Discussion:-

Name	Rasa	Guna	Veerya	Vipaka	Part used	Doshkarma
Shatavari	Madhur, Tikta	Guru, Snigdha	Sheeta	Madhura	Root	Vatapitta shamaka, mutral
Darbha	Madhur, Kashaya	Laghu, Snigdha	Sheeta	Madhura	Root	Tridoshshamaka, Ashmarinashan Mutral
Madhuk	Madhur	Guru, Snigdha	Sheeta	Madhura	Root	Vata pitta shamaka, mutral, mutravirajniya
Kshir morat	Madhur	Guru, Snigdha	Ushna	Madhur	Root	Vatapittashamaka, alterative stimulant tonic, blood purifier,
Pashan bheda	Kashaya, Tikta	Laghu, Snigdha, Tikshna	Sheeta	Katu	Root	Tridoshshamaka, Ashmaribhedan, Mutral
Usheer	Tikta, Madhura	Laghu, Ruksha	Sheeta	Katu	Root	Kapha pitta shamaka, Mutra janan
Katak	Madhur, Kashaya, Tikta	Laghu, Vishad	Sheeta	Madhur	Seeds	Kaphavata shamaka, Mutrajanana, Ashmaribhedana

B. Mode of Action of Mutragraha Yoga

- ★ All constituents of drug have madhur rasa, By virtue of which it is mutral and anulomana thus relieving pratiloma gati of apana vayu. It also relieves mutradaha.
- ★ Shatavari, Madhuk and Kshiramorat have guru and snigdha guna and these gunas are vatashamaka and malavardhaka.
- ★ All constituents of drug have sheet virya which makes drug as prasadaka and clears strotas avrodha.
- ★ Madhur vipaka of most of the constituents leads to srishta-vittamutra maruta thus causing diuresis.
- ★ Drug also has pitta shamaka as well as vata shamaka properties along with mutra virechaniya and vedna shamaka action.
- ★ Kshiramorat, Darbhoola are rasayana thus enhance the immune response of body.
- ★ Darbhoola has antibacterial action against Staphylococcus aureus.
- ★ Madhuk also has antibacterial action
- ★ Saponins present in Shatavari are responsible for its diuretic action.
- ★ Triterpenoids in darbha are responsible for its anticancer activity.

Mutragraha yoga kwath is a mutravirechaneeya drug. The mutra virechaneeya drugs perform their action by decreasing the agneyatva and increasing the jaliya tatva in the urine. They act by their pittashamana, vatanulomana and srotodahara karma.¹³

IV. SUMMARY

- ❖ U.T.I is a common problem in pregnancy.
- ❖ It is concluded from the discussion of present study that mutragraha which has been tried to study taking into account the signs and symptomatology of mutrakrichhra may be explained as Urinary Tract Infection (UTI) in modern days.
- ❖ The drug Mutragraha yoga acts by its antibacterial, immunomodulatory, adaptogenic, deepan-pachan, vata-pitta shamak, vatanulomak and diuretic action.
- ❖ Mutragraha yoga showed effective result in reducing the subjective and objective criteria of U.T.I in pregnant patients.
- ❖ It was noticed that all the patients tolerated the treatment quiet well and no adverse reaction to the drugs were observed during the course of treatment.

Thus, it can be concluded from the present study that trial drugs are safe and effective in the management of Garbhini Mutragraha.

V. CONCLUSION

- This study is carried out in a small sample. For better Exploration of the study in Large sample is necessary.
- Urinary tract infections are a common cause of serious maternal and perinatal morbidity. All pregnant women should be screened for bacteriuria.

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