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EFFICACY OF AMRITADI KWATH IN THE MANAGEMENT OF MUTRAKRICCHRA (URINARY TRACT INFECTION): A PROSPECTIVE CLINICAL STUDY

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ABSTRACT

Background: One of the common *Mutravaha Srotas* diseases listed in *Ayurveda* is *Mutrakricchra*, which is characterized by discomfort, burning, and difficulty during micturition. It can be associated with a simple urinary tract infection (UTI) based on its clinical signs. With its *Mutrala, Pittashamaka, Shothahara, and Rasayana* qualities, *Amritadi Kwath*, a traditional Ayurvedic formulation mentioned in *Chakradatta*, is a possible therapeutic intervention for the treatment of *Mutrakricchra*. **Objective:** To evaluate the clinical efficacy of *Amritadi Kwath* in the management of *Mutrakricchra* with special reference to UTI. **Materials and Methods:** Thirty patients with a diagnosis of *Mutrakricchra*, ages 20 to 60, participated in an open-label, prospective, single-arm clinical research. For thirty days, *Amritadi Kwath* was given to each participant. Both objective (urine color and pus cells) and subjective (burning micturition, frequency of micturition, and discomfort during micturition) measures were used to evaluate clinical efficacy. The paired-sample t-test was used for statistical analysis. **Results:** All evaluated indicators showed statistically substantial improvement ($p < 0.001$) after treatment with *Amritadi Kwath.*

Following treatment, there were notable decreases in burning micturition, frequency of urination, discomfort during micturition, urinary pus cells, and aberrant urine colour. **Conclusion:** In the treatment of *Mutrakricchra, Amritadi Kwath* showed notable clinical success, particularly with regard to urinary tract infections. Without any known side effects, the mixture successfully reduced urinary symptoms and enhanced laboratory parameters, indicating that it is a safe, efficient, and cost-effective *Ayurvedic* remedy. To confirm these results, more multicentric research with bigger sample sizes and longer follow-up is advised.

KEYWORDS: *Mutrakricchra*, Urinary Tract Infection, *Amritadi Kwath, Ayurveda*, Clinical Study.

INTRODUCTION

Ayurveda is a life science, helpful for maintaining the physical, social, and mental health of an individual. In *Ayurveda,* there are eight branches that mainly deal with the preventive and curative aspects of an individual's life.[1] The prevention aspect has been given prime importance in *Ayurveda*. *Dosha*, *Dhatu,* and *Mala* (waste product) are the basic substrata of the body according to *Ayurveda*. It means they help in maintaining the structural and functional integrity of the body. *Doshas* are the main bio-energies that are responsible for physiological activities. If the *Doshas* are in an equilibrium state, a person will be in a healthy state, but any imbalance in the *Dosha* leads to a disease state. *Dhatus* stabilize and support the body by providing strength and maintaining health.[2] *Mala* (waste product) are the constituents of the body that are regularly eliminated by the body and thus clean the body.

Mala (waste product), which are formed during the process of digestion, are called *Anna-Mala,* while *Malas* formed in the metabolism of *Dhatus* are called *Dhatu-Mala*. Waste products of food are urine and feces, while waste of *Rasa*, *Rakta*, *Mamsa*, *Meda* are *Kapha*, *Pitta, Kha Mala and Sweda* (sweat). Waste products of *Asthi Dhatu* are *Kesha* (hair) and *Loma,* while *Sneha* of eyes, faces, and skin are the waste products of *Majja Dhatu*.[3]

Urine is one among the *Trimala,* and it plays an important role in *Kledavahana*. The urinary bladder (Basti) and pelvic region (*Vankshana*) are roots (*Srotomula*) of the urine. Urinary bladder (*Basti*) is one among the *Trimarma*. The urinary bladder (*Basti*) is a site of *Prana* (*Pranayatan*), and it is also *Sadyopranahara Marma,* i.e., causing sudden death due to injury.[4] This is an important organ related to urine formation. All these factors show the

importance of the urine and its related structure. Disorders related to urine have been elaborately explained by our *Acharyas,* and *Mutrakricchra* is one among them.

Mutrakricchra is the disease of the *Mutravaha srotas*. It affects the urine and urinary tract. Term *Mutrakricchra* is made up of two words, '*Mutra'* and '*Kricchra'*. Here, *Mutra* refers to ooze, and *Kricchra* refers to difficulty. Hence, *Mutrakricchra* is a disease in which there is difficulty during micturition. According to *Acharya Charaka, Mutrakricchra* includes obstruction of urine along with difficulty while passing urine. It is *a prominent Vata Tridoshaja* disease. *Acharya Charak* has given eight types of *Mutrakricchra. Mutrakricchra* is one among them.

The symptoms of *Mutrakricchra* are yellow or reddish-colored urine, painful micturition, burning micturition, increased frequency, and reduced quantity of urine. The causative factors responsible for *Mutrakricchra* are intake of food with excessive hot potency, salt, pungent, sour in taste, animals' meat from marshy land, alcohol, medicines having sharp potency, excessive physical exertion, excess sexual intercourse, suppression of natural urges, and trauma. These causative factors aggravate *Pitta Dosha* and influence the *Vata Dosha*. The aggravated *Doshas* enter the urinary bladder (*Basti*) and produce obstruction, hesitancy, and irritation, which in turn lead to inflammation at urinary bladder (*Basti*) causing the disease *Mutrakricchra*.[5]

The above symptoms can be correlated with a urinary tract infection. The occurrence of urinary tract infection is seen quite commonly. It causes severe crippling symptoms, and a severe form of urinary tract infections may at times prove fatal. A urinary tract infection may be defined as a condition in which bacteria invade, persist and multiply within the urinary tract. The clinical features, diagnosis, treatment, complications, and long-term sequelae vary according to the locus of infection and the existence of any structural abnormality.[6]

A urinary tract infection is associated with multiplication of organisms in the urinary tract and is defined as the presence of more than 105organism/ml in the midstream sample of urine. The urinary tract can be divided into two, upper urinary tract and the lower urinary tract.

The upper urinary tract involves the kidneys and their collecting systems (pyelonephritis) and peri- nephric abscess, and lower urinary tract infection includes the urinary bladder (cystitis),

prostate (prostatitis), and urethra (urethritis). A urinary tract infection (UTI) exists when pathogenic microorganisms are detected in the urine, urethra, bladder, kidney, or prostate. In the female population, these infections occur in 1-3% of school girls and then increase markedly in incidence with the onset of sexual activity in adolescence. The vast majority of acute symptomatic infections involve young women; a prospective study demonstrated an annual incidence of 0.5-0.7% infections per patient per year in this group. In the male population, acute symptomatic urinary tract infection occurs in the first year of life.[7]

The majority of urinary tract infections are caused by gram-negative bacilli, which are normal inhabitants of the intestinal tract, such as Escherichia coli, Klebsiella, Enterobacter, Pseudomonas, and Proteus. Bacteria can reach the urinary tract via the bloodstream, the lymphatic system, or by direct extension, but in the majority of cases via the ascending transurethral route. Ascending infection is the most common route of infection of the renal parenchyma. It is a form of endogenous infection, where the source of infecting organisms is the patient's own faecal flora. The infection ascends into the renal parenchyma. Patients suffer from urgency, burning sensation, increased frequency, suprapubic pain, and discomfort. In treatment, fluid intake >2 L/day is advised to initiate water diuresis, regular complete bladder emptying, analgesics, antibiotics, and maintaining adequate perineal hygiene in females.[8]

Although *Amritadi Kwath* has long been used in *Ayurvedic* clinical practice, scientific evidence supporting its efficacy in the management of *Mutrakricchra* remains limited. Therefore, the present study was undertaken to evaluate the clinical efficacy of *Amritadi Kwath* in patients with *Mutrakricchra* with special reference to urinary tract infection, using both subjective clinical symptoms and objective laboratory parameters.

MATERIALS AND METHODS

Study Design

The present study was conducted as an open-label, prospective, single-arm interventional clinical study to evaluate the efficacy of *Amritadi Kwath* in the management of *Mutrakricchra* with special reference to Urinary Tract Infection (UTI). The study was carried out in accordance with the CONSORT reporting guidelines for clinical research.

Study Population

A total of 30 patients diagnosed with *Mutrakricchra* based on classical *Ayurvedic* signs and symptoms and fulfilling the eligibility criteria were enrolled in the study. Both male and female patients aged between 20 and 60 years were included after obtaining written informed consent.

Outcome Measures

Subjective Parameters

- *Sa-daha Mutrapravriti* (Burning micturition)
- *Muhurmuhur Mutrapravriti* (Frequency of micturition)
- *Ruja* (Pain during micturition)

Objective Parameters

- Presence of pus cells in urine
- Urine color

RESULTS

Thirty patients diagnosed with *Mutrakricchra* completed the study and received *Amritadi Kwath* for 30 days. Post-treatment assessment demonstrated a statistically highly significant improvement in all evaluated subjective and objective parameters ($p < 0.001$). The mean score of *Sa-daha Mutrapravriti* (burning micturition) decreased from 1.80 ± 0.676 to 0.07 ± 0.258, *Muhurmuhur Mutrapravriti* (frequency of micturition) from 2.33 ± 0.617 to 0.60 ± 0.507, and *Ruja* (pain during micturition) from 1.67 ± 0.617 to 0.13 ± 0.352. Objective assessment also revealed significant improvement, with the mean score for urinary pus cells reducing from 1.40 ± 0.507 to 0.07 ± 0.258, while the urine color score improved from 2.00 ± 0.756 to 0.13 ± 0.352 following treatment. Overall, *Amritadi Kwath* produced significant clinical and laboratory improvement in patients with *Mutrakricchra* associated with urinary tract infection.

DISCUSSION

The present study evaluated the efficacy of *Amritadi Kwath* in the management of *Mutrakricchra* with special reference to urinary tract infection (UTI). The findings demonstrated statistically highly significant improvement in both subjective and objective parameters after 30 days of treatment, indicating the clinical effectiveness of the formulation.

The significant reduction in burning micturition (*Sa-daha Mutrapravriti*), frequency of micturition (*Muhurmuhur Mutrapravriti*), and pain during micturition (*Ruja*) suggests that Amritadi Kwath effectively alleviates urinary symptoms. Improvement in urinary pus cells and urine color further indicates a reduction in urinary tract inflammation and restoration of normal urinary function.

The therapeutic effects of *Amritadi Kwath* may be attributed to the synergistic action of its ingredients, which possess *Mutrala* (diuretic), *Pittashamaka, Shothahara* (anti-inflammatory), *Krimighna* (antimicrobial), and *Rasayana* properties. These pharmacological actions promote urine flow, reduce inflammation and burning sensation, help eliminate infective organisms, and support healing of the urinary tract. From an Ayurvedic perspective, the formulation helps pacify *Vata* and *Pitta Dosha*, thereby correcting the underlying pathogenesis of *Mutrakricchra*.

The findings of the present study suggest that *Amritadi Kwath* is an effective, safe, and economical *Ayurvedic* intervention for the management of *Mutrakricchra* associated with UTI. However, the study was limited by its small sample size, single-arm design, and short follow-up period. Further multicentric studies with larger sample sizes and longer follow-up are warranted to validate these findings and strengthen the clinical evidence.

CONCLUSION

The present study demonstrated that *Amritadi Kwath* is effective in the management of *Mutrakricchra* with special reference to urinary tract infection (UTI). Treatment with *Amritadi Kwath* for 30 days resulted in statistically significant improvement in both subjective and objective parameters, including burning micturition, frequency of micturition, pain during micturition, urinary pus cells, and urine color. The observed therapeutic effects may be attributed to the formulation's *Mutrala, Pittashamaka, Shothahara, Krimighna, and Rasayana* properties, which help alleviate urinary symptoms and improve urinary tract health. The findings suggest that *Amritadi Kwath* is a safe, effective, and economical Ayurvedic intervention for the management of uncomplicated UTI. However, further multicentric studies with larger sample sizes and longer follow-up are required to confirm these findings and strengthen the clinical evidence.

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