A Survey Study on Etiological factors of Mutrashmari (Urolithiasis) in Perspective of Ayurved and Contemporary Era

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ABSTRACT

Background: *Mutrashmari* is one of the most common conditions in which stone formed in the urinary tract. The word *Ashmari* in Sanskrit denotes the stone or calculi and *Mutra* means urine which is carried by *Mutravaha Srotas*. According to Acharya Sushruta *Mutrashmari* is one among the *Ashta Mahagada*. *Mutrashmari* is dreadful and has the potential to disturb the anatomy and physiology of the urinary system. Once it formed in the body it tends recurrence thus get difficult to cure & hence Acharyas called it as *Mahagada*. In modern medical science, it can be correlated with Urinary Calculi or Urolithiasis based on their signs and symptoms. Factors like diet, water, climate, geographical conditions are responsible for the formation of calculi.

Objectives: To compare etiological factors of *Mutrashmari* mentioned in Ayurveda and contemporary era. To put forth the recommendations based on study results.

Methodology: This is a descriptive cross-sectional study conducted at AVBRH, Sawangi (Meghe) Wardha. Total of 60 diagnosed patients selected by simple random sampling method was enrolled in the study. Patients were contacted and interviewed at urology OPD of AVBRH Sawangi (Meghe) twice a week with a semi structured questionnaire. The study will be conducted in 3 months during which data will be collected as per the questionnaire. Discussion: This cross-sectional study helps to provide data regarding etiological factors for *Mutrashmari* (Urolithiasis) from both Ayurveda and Contemporary view.

Key Words: Ayurveda, Etiological factors, *Mahagada*, *Mutrashmari*, Urolithiasis

INTRODUCTION

Mutrashmari is one of the most common conditions in which stone formed in the urinary tract. The word *Ashmari* in Sanskrit denotes the stone or calculi and *Mutra* means urine which is carried by *Mutravaha Srotas*. According to Acharya Sushruta *Mutrashmari* is one among the *Ashta Mahagada*.¹ *Mahagada* means which is dreadful, incurable one and major disease in terms of its severe morbidity.² *Mutrashmari* is dreadful and has potential to disturb the anatomy and physiology of urinary system. Once it formed in the body it tends recurrence thus get difficult to cure and hence Acharyas called it as *Mahagada*. Also, the location of *ashmari* is described as *Basti* which is one of the important trimarma

(Three vital parts).³ The region where *marma* is located have tridosha, *triguna*, *bhutatma* and *chetana dhatu*.^{4,5} This indicates the importance of disease and invites its critical study. Acharya Sushruta the father of surgery has explained the formation of *Ashmari* in details including *Nidana*, *Samprapti*, *Purvarupa*, *Rupa*, *Bheda*, *Upadrava* and *Chikitsa* in a most scientific manner while Acharya Charaka explained it under *Mutrakrichchha Vyadhi*.

In modern medical science, it can be correlated with Urinary Calculi or Urolithiasis based on their signs and symptoms. It affects all age groups and both sexes but the peak incidence is observed in 2nd to 3rd decades of life with a male-female ratio of 2:1.⁶ The stones may be present at different sites such

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as in kidney, ureter, bladder or urethra. Among the urological diseases, Urolithiasis is the third most common disease in the world. In industrialized countries, there is a considerable increase in the prevalence of Urolithiasis in the present century. From the whole world, overall 3-20 % population develops one urinary stone from 70 yrs life span.⁷ Factors like dietary habits, climate, environment, ethnicity, heredity etc. are responsible for varying prevalence of Urolithiasis. Some other others factors like nutritional pattern, changing lifestyle, less physical activity, high intake of energy, excess consumption of food rich in proteins, carbohydrates & fats, excess alcohol consumption, smoking, prolonged stress are act as exogenic risk factors for Urolithiasis.^{8,9} Adequate fluid intake and dietary modifications might successfully prevent stone recurrence.

Mutrashmari has become a very common health issue in India. According to the study conducted by Ayush Lohia et al. The lifetime prevalence of renal stones was found to be 7.9%.¹⁰ Ayurveda relies on treating the disease at its root cause. *Nidanparivarjan* i.e. avoidance of the etiological factor is the first step of treatment which prevents further disease progression.¹¹ So Knowledge of etiological factors responsible for the genesis of particular diseases is always important for a successful treatment. *Mutrashmari* is closely related to the causes such as unhealthy diet, habits and environment which are subjective. Which etiological factors of *Mutrashmari* mentioned in Ayurveda are frequent and which are the other factors in the contemporary era responsible for *Mutrashmari* is also needed to be studied. It is also necessary to know the various etiological factors of *Mutrashmari* which helps to understand the *Samprapti* (pathogenesis) properly and render the treatment precisely.

OBJECTIVES

- Comparative study of etiological factors of *Mutrashmari* mentioned in Ayurveda and contemporary era.
- To put forth the recommendations based on study results.

Case Definition

The patient with stones in urinary tract diagnosed by Uro surgeon with the confirmatory evidence from investigations like USG, X-Ray –KUB, CT Scan etc.

MATERIALS AND METHODS

Study design: This is a descriptive cross-sectional study conducted at AVBRH, Sawangi (Meghe) Wardha. Total of 60 diagnosed patients selected by simple random sampling method was enrolled in this study. Patients were contacted and interviewed at urology OPD of AVBRH Sawangi

(Meghe) twice a week with semi-structured questionnaire and data will be collected as per the questionnaire. Ethical Committee approval has been obtained from the Institutional Ethical Committee, MGACH and RC, Salod (H), Wardha

Setting: The study will be conducted at AVBRH, Sawangi (Meghe) Wardha. The Subjects of study will be recruited from the sign and symptoms of Urolithiasis from Urology OPD of AVBRH, Sawangi (Meghe) Wardha. In one visit 5 patients will be visited. The study will be conducted in 3 months during which data will be collected as per the questionnaire.

Participants: The patient with stones in the urinary tract diagnosed by Urosurgen with the confirmatory evidence from investigations like UGG, X-Ray –KUB, CT Scan etc. will be selected for the study. Involvement in the study is voluntary. Inclusion and exclusion criteria are the base for enrolment. Diagnosed patients of *Mutraashmari* (Urolithiasis) willing to participate are enrolled in the study.

Inclusion and Exclusion Criteria:

Patients diagnosed with *Mutrashmari* (urolithiasis) and willing to participate were included in this study while critically ill patients and those who are not willing will be excluded from the study.

Bias: To minimize the bias each participant will be selected randomly by a simple random sampling method.

Sample size: According to a study conducted by AyushLo-hiyaet.al lifetime prevalence of urinary stones was 7.9%.⁸ Considering this reference and by using prevalence formula sample size was calculates as,

$$N = 4pq/L^2 = 4 \times 7.9 \times 92.1 / 7^2 = 2910.36/49 = 59.4 \approx 60$$

So the total participants included in the study were 60.

Recruitment:

People who are willing to participate in this study will be provided details regarding the study by verbal explanation. Then if the participant will agree with given information provided with the questionnaire. Each participant will be given written informed consent. Physical and general examinations will be done before starting core data collection along with PI. Recruited participant must include in eligibility criteria.

Baseline assessment:

Symptoms of *Mutrashmari* (Urolithiasis), investigations like USG, X-ray –KUB, CT Scan etc. will be assessed at baseline.

Ethical Consideration:

Ethical Approval obtained from the Institutional Ethical Committee, MGACH and RC, Salod (H), Wardha.

Method of data analysis:

Statistical analysis must be done by applying the “Unpaired t-test”. This test of comparison is used to compare the etiological factors of *Mutrashmari* (Urolithiasis) according to Ayurveda & Modern science.

Strengths: Ayurveda mentioned more précised etiological factors which may help cure *Mutrashmari*.

Limitations: Other than etiological factors mentioned in Ayurveda due to modified lifestyle there may be changes in etiological factors which are mentioned in the contemporary era.

EXPECTED RESULTS

Results will be obtained by the data collected from the questionnaire regarding diet, lifestyle, water intake, habits, climate, and geographical conditions etc. which are responsible for the formation of calculi.

DISCUSSION

Various earlier studies have proved that the formation of *Mutrashmari* can be controlled by avoiding etiological factors responsible for the manifestation of *Mutrashmari*. Many studies on kidney and urinary system disorders from this region are available.¹²⁻¹⁴ Dietary habits and lifestyle changes which are the main causes for the formation of stone can be controlled by proper explanation to the patients which is explained by peer sages of ancient about the avoiding of the cause i.e *Nidanparivarjan*. This study will be useful to know the causative factors of *Mutrashmari* in both Ayurveda and Contemporary sciences which helps to understand the etiological factors and avoid them by which *Mutrashmari* can be controlled. Hagone et al. reported a case of management of glomerulonephritis through Ayurveda.¹⁵ Gadewar et al studied the dynamics of electroencephalogram (EEG) in different stages of chronic kidney disease.¹⁶ Kumar et al reported on Symptoms and Signs Predict Reduced Renal Function among Hospitalized Adults.¹⁷

CONCLUSION

Appropriate conclusion will be drawn from the collected data at the end study.

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