

Pallavi Ganesh Poojari, Sarita T, Prasanna N Mogasale, Naveenchandra N H, Nagaraj S. The conceptualization of tool development for Mutra Pareeksha of Kaphaja Prameha. Jour. of Ayurveda & Holistic Medicine, Vol.-XI, Issue-XI (Nov. 2023).



Journal of Ayurveda & Holistic Medicine

www.jahm.co.in

eISSN-2321-1563

REVIEW ARTICLE

OPEN ACCESS

THE CONCEPTUALIZATION OF TOOL DEVELOPMENT FOR MUTRA PAREEKSHA OF KAPHAJA PRAMEHA

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Submitted on- 25-11-23

Revised on- 30-11-23

Accepted on-3-12-23

ABSTRACT:

Background: Different *Pareeksha* have been described in Ayurveda; *Asthasthana Pareeksha* is one of them which includes *Mutra Pareeksha*. *Prameha* is a *Kapha Pradhana Tridosha Roga*, where the entire *Vyadhi* is explained based on *Mutra Lakshana*. It further affects the *Kleda Pradhana Dhatu* resulting in *Prabhuta Mutra* and *Avila Mutra*. Based on *Dosha Pradhanata*, *Prameha* has been classified into 20 varieties of which 10 are *Kaphaja Prameha*. Its identification is mainly based on *Varna*, *Gandha*, *Rasa*, and *Sparshadhi Visheshha*. The demand for standards for developing and evaluating diagnostic tools in Ayurveda has increased tremendously in recent years. Hence this study aims to conceptualize the development of tools for *Mutra Pareeksha* of *Kaphaja Prameha* for its diagnosis. **Objectives:** This study aims to develop tools for *Mutra Pareeksha* of *Kaphaja Prameha* based on the *Lakshana*. **Materials and Method:** A comprehensive review of relevant texts and literature in Ayurveda or related fields was conducted to identify the classical features or parameters associated with *Kaphaja Prameha* which helps to establish a foundation of knowledge and informs the development process of the tools. **Result and Conclusion:** Tools for *Kaphaja Prameha* can be developed in the current era to standardize the clinical approach and generate new ideas for development.

Keywords- *Mutra Pareeksha*; *Kaphaja Prameha*; tools for *Kaphaja Prameha*

INTRODUCTION

Prameha is *Kapha Pradhana Tridoshaja, Kledajanya Vyadhi* where various *Nidana* causes *Prakopa* of *Shleshma* and *Kleda Dushya* in the *Shareera* (body) leads to an increase in *Shareeraja Kleda* resulting in *Pratyatma Lakshana* of the *Vyadhi*, i.e., *Prabhuta Avila Mutra*^[1]. Therefore, *Kaphaja Prameha* is mentioned first among the three forms of *Prameha*. Here, *Nidana* plays a role in increasing the *Guna* of *Kapha* like *Kleda, Sheeta*, etc. As a result of its *Samana Guna*, it increases the amount of the *Kleda Pradhana Dhatu* such as *Meda, Mamsa, and Shareeraja Kleda*^[2]. *Karma* of *Mutra* (urine) is to remove excess *Kleda* from the *Shareera* (body). Thus, in *Prameha, Prabhuta Avila Mutra* (urine) is seen. The types of *Kaphaja Prameha* in classics are all explained based on *Varna* (colour), *Gandha* (odour), *Rasa*(taste), and *Sparshaadi Vishesha* (touch, etc) of *Mutra Lakshana*^[3]. *Pareeksha* (examination) is the means of attainment of knowledge. The various kinds of *Pareeksha* (examination) which

- Conceptualization of tool development

A comprehensive review of relevant texts and literature in Ayurveda or related

are discussed in the classics contribute to the accurate identification of disease. Among them, *Mutra Pareeksha* (urine examination) is essential for the identification of *Kaphaja Prameha*.

Modern science has advanced urine analysis based on numerous forms of research and utilizes it to make precise diagnoses of various ailments. Although *Mutra Pareeksha* (urine examination) has been defined in Ayurveda for diagnosis, the contemporary era demands specifications for developing and evaluating diagnostic instruments in Ayurveda to standardize the clinical approach and diagnosis. According to *Dosha*, there is a paucity of tools designed for *Mutra Pareeksha* (urine examination). In this regard, this study aims at the conceptualization of tool development for *Kaphaja Prameha*.

Aims and Objectives: This study aims to conceptualize tool development for *Mutra Pareeksha* of *Kaphaja Prameha* based on the *Lakshana* (features).

MATERIALS AND METHODS

fields was conducted to identify the classical features or parameters associated with the condition of *Kaphaja*

Prameha. This step helps establish a knowledge foundation and informs the development process. Based on the identified classical features of *Lakshana* of *Kaphaja Prameha* a framework for tools was designed based solely on the concept of *Pratyatma Lakshana* (cardinal feature), *Varna* (colour), *Gandha* (odour), *Rasa*(taste), and *Sparshaadi Vishesha*

(touch etc) *Lakshana* explained in *Kaphaja Prameha* [3]. They are as follows:

1. *Pratyatma Lakshana* (cardinal feature): *Prabhuta mutra* represent the frequency and quantitative increase of urine and *Avila Mutra* is more akin to urinary pathology. This suggests the turbidity of urine.

<i>Lakshana</i>	Tools
<i>Prabhuta Mutra</i> (increased amount and frequency)	Frequency-volume chart.
<i>Avila Mutra</i> (Turbidity of urine)	Turbidimeter

2. *Varna* (colour): Monier William Dictionary defines *Varna* (colour) as "outward appearance, form, figure; color, tint, dye, paint; luster, etc." The tool can be

conceptualized by meticulously analyzing the word meanings of *Varna* (colour) and characteristics mentioned in literature for *Kaphaja Prameha*.

<i>Lakshana</i>	Tools
<i>Varna</i>	1. <i>Varna: Kaphaja Prameha</i> Colour chart 2. <i>Rupa</i> (feature): <i>Phena</i> - Vortex mixer/cyclo mixer <i>Sandra /Sanhanyate /Gurutva</i> : Multiple reagent strips test-specific gravity, Centrifuge, and Sample check after 24-hour

3. *Gandha* (odor): The olfactory sensory faculty perceives *Gandha* (odour) . In a normal state, urine generally has a slightly ammonia-like odor or is odorless. Among

the ten types of *Kaphaja Prameha*, no particular *Gandha* (odour) is listed. Thus, the following was adopted.

<i>Lakshana</i>	Tools

<i>Gandha</i>	<i>Ghranendriya Pareeksha</i> (examination by smell)
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4. *Rasa* (taste): The term *Rasa* (taste) is derived from the root *Rasa* as it is being savored or tasted. According to Charaka, *Rasendriya* is used to assess *Rasa* but its knowledge can be obtained through *Anumana* and *Prashna Pareeksha*. ex: *Makshika* (flies) around a *Shareera* body) indicates *Madhura Rasa* (sweet taste) of the body^[4]. *Prameha* cites a diversity of tastes in types of *Kaphaja*. While *Rasendriya Pareeksha* (examination by smell) is not applicable in this case, tests that may quantify the *Rasa* have been conceptualized.

<i>Lakshana</i>	Tools
<i>Rasa</i>	1. <i>Madhura</i> (sweet taste): multiple reagent strip test- Glucose 2. <i>Lavana</i> (salty): Electrolytes in urine

5. *Sparsha* (touch): Touch is perceived by the tactile sensory faculty. It exists in four realms: earth, water, fire, and air. It is linked to the skin. It can distinguish shapes and is thought to be secondary to eyesight^[5]. Because *Kapha* has *Guna* of *Sheeta* (cold), *Snigdha* (unctuous), *Picchila* (slimy), etc all of them have displayed certain *Lakshana* (features) in distinct forms of *Kaphaja Prameha*. As a result, all of them can be examined using the tools described below:

<i>Lakshana</i>	Tools
<i>Sparsha</i>	<i>Sheeta</i> : a) body thermometer- body temperature b) Strip thermometer- temperature just after voiding of urine c) Digital instant-read thermometer- note temperature at various hours. 2. <i>Snigdha/Picchila Mrtsna</i> : Parchment paper 3. <i>Tantubhadda</i> : capillary tube

6. *Prashna* (questionnaire): In addition to *Varna* (colour) , *Gandha* (odour) , *Rasa*(taste), and *Sparsha* (touch), *Prashna Pareeksha* (questionnaire) can be implemented. The *Lakshana* (features) described in *Kaphaja Prameha* can be used to evaluate them as follows-

Lakshana	Tools
<i>Prashna</i>	1. <i>Avedana / Ruja</i> (pain): Wong-Baker's face pain rating scale. 2. <i>Bahu, Muhurmuhur mehati</i> : Questionnaire for Frequency and volume of urine 3. <i>Shanaihi, Sthokam, Manda Vega, and Kriccha Mutrayeth</i> : Questionnaire for a stream of urine 4. <i>Hristaloma</i> : Questionnaire for horripilation

7. Microscopic: With a critical review of the literature, *Acharyas* have explained *Sikatameha, Shukrameha, etc.* suggesting the presence of sediments and semen in urine. To assess these, one can consider modern equipment as a tool for assessment.

Lakshana	Tools
Microscope	For Pus, RBC, Epithelial cells and casts and crystals

DISCUSSION:

The conceptualization of creating a tool was done to be able to establish a baseline tool for diagnosing *Kaphaja Prameha*. It has been designed by combining all the *Lakshana* mentioned in 10 types of *Kaphaja Prameha* to identify the types by running all the tests. Practicality and feasibility were considered when choosing the following instruments, each of which has strengths and limitations of its own:

1. Frequency-volume chart: a convenient and inexpensive method for measuring urine. It is

the methodical documentation of patients' voiding behaviors in their surroundings over a specific period. Its diagnostic capacity is limited, but its reproducibility is acceptable [6].

2. Turbidimeter: It's a quick, simple, and delicate technique. It quantifies the sample's level of turbidity. This instrument's shortcomings include irregular signals, air bubbles in the sample reflecting light, and inconsistent readings among different designs. Furthermore, it is lacking in measuring the particle sizes in a sample [7].

3. *Kaphaja Prameha* Colour chart: This can be created taking into account every *Varna* that is described in *Kaphaja Prameha*. Ex: *Ikshu Varna* is used to describe the hue of sugarcane juice. If the sugarcane's outer skin is used, the color can be green, whereas when the skin is not used, it can be mustard yellow to light yellow. However, as most of the juice's coloring is achieved without the use of skin, the mustard-to light-yellow hue can be taken into consideration. Similarly, a detailed analysis of every color led to the creation of a *Kaphaja Prameha* color chart. Nevertheless, the outcome may vary since observers' perceptions of hue vary. It will thus be necessary to validate the chart.
4. Vortex mixer/cyclo mixer: The device has various speed settings that allow technicians to manually set and maintain a suitable pace during the process. This feature helps assess the *Phenata*. It operates with minimal expertise and resources. If the tube is not held correctly, there is a chance of spilling. chromatography for evaluating the colour of different *Kaphaja Prameha*.
5. Multiple reagent strips test-specific gravity: an easy method that corresponds well with gravimetric measurement and does not require correction for protein or glucose, unlike gravimetric or refractometer procedures. Air exposure of the strip should be avoided since it may modify the readings.
6. Centrifuge: relatively quick and simple to execute. The biological molecules' integrity and activity are preserved. Numerous factors, including the size and type of centrifuge tubes, the sample's density and viscosity, the spin's duration and speed, and the surrounding air temperature and humidity, can all have an impact. These elements may cause variations and inaccuracies in the outcomes.
7. *Ghranendriya Pareeksha*: It is the simplest and most inexpensive method of odour assessment examination. The sole drawback is that individual perceptions of odor affect the outcomes. To investigate *Gandha* (odour), more advanced equipment can be used, such as gas chromatography.
8. Electrolytes in urine: it can be detected by an electrolyte analyzer which is accurate and inexpensive. The disadvantage of using the device is that it is invasive [8].
9. Body thermometer, Strip thermometer, and a digital instant-read thermometer: These tools provide a wide range of readings by measuring the temperature at various times and levels, which improves test accuracy.
10. Parchment paper: the use of parchment paper is done to prevent sticking [9]. This becomes an advantage of its use in the assessment of *Snigdhatta* in *Mutra*.

11. Capillary tube: The liquid's contact with the inner surface of the tube helps the fluid flow against gravity in a small space. The capillary action increases with tube narrowness. This aids in determining the fluid's viscosity and evaluating *Tantubhadda*. If the design is erroneous, has variable loads, and is not cleaned, the results may differ ^[10].
12. Wong-Baker's face pain rating scale: This useful instrument facilitates the evaluation of discomfort during micturition. The accuracy could be impacted by emotional influences and confusion ^[11].
13. Questionnaire: These can be formatted by the literature findings of *Kaphaja Prameha*, for example, as questions about the frequency or stream of urine, but they require to be thoroughly evaluated and validated.

These tools can be implemented first by a pilot study on patients with features of *Kaphaja Prameha* and to assess its applicability it can be tested on apparently healthy individuals to get a reference range. Based on a pilot study, refining the tools can be processed so that a set of tools can be established for the diagnosis which can be implemented on a larger group which will aid in diagnosis.

CONCLUSION:

Ayurveda is a holistic and human-centered approach to health and disease requiring

consideration of many aspects when performing a diagnostic assessment. Clinicians' assessment techniques and disease diagnoses vary greatly as a result of the concept of personalized diagnosis. Thus, to standardize the clinical approach and generate new ideas for development, this concept was an attempt to conceptualize tool development for *Kaphaja Prameha*.

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CITE THIS ARTICLE AS

Pallavi Ganesh Poojari, Sarita T, Prasanna N Mogasale, Naveenchandra N H, Nagaraj S. The conceptualization of tool development for Mutra Pareeksha of Kaphaja Prameha. *J of Ayurveda and Hol Med (JAHM)*. 2023;11(11):60-67

Conflict of interest: None

Source of support: None