



International Journal of Mosquito Research

ISSN: 2348-5906
CODEN: IJMRK2
IJMR 2023; 10(6): 23-27
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<https://www.dipterajournal.com>
Received: 18-08-2023
Accepted: 20-09-2023

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A systematic review on concept of Malaria (Visham Jwara) and its management by Godanti Bhasma

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DOI: <https://doi.org/10.22271/23487941.2023.v10.i6a.713>

Abstract

Developing nations are more susceptible to illnesses carried by vectors than are developed nations. Malaria is a severe issue in Africa; it is responsible for 20% of all children fatalities and results in a kid dying from the disease every 30 seconds. Malaria incidence and mortality rates are both rising quickly. With the development of drug-resistant strains of Plasmodium Vivax and Plasmodium Falciparum, as well as the vectors' tolerance to chemical pesticides, the malaria issue has taken on new dimensions. These are the major challenges of controlling malaria, hence developing new methods of doing so is urgently necessary. Vishama Jwara, or irregular or intermittent fever, has two main sorts of causes: Agantuja (External forces) and Svabhavaja Hetu (Internal reasons). Apart from these different Jwara Nidanas, the onset of Vishama Jwara (irregular or intermittent fever) is also influenced by Samanya Jwara Nidana (general aetiology of fever) as described in Sushruta Samhita and Sannipatika Jwara Nidana (aetiology of fever caused by Tridosha) as described in Charaka Samhita. The conceptual study and the observational investigation are the two sections of the current study. The length of the infection and the strain of Plasmodium determine how severe it is.

Keywords: Plasmodium vivax, vishama jwara, malarial fever, *vishama jwara*, nidana

Introduction

In Asia, Africa, and America, malaria is one of the most common and fatal infectious illnesses. Around 250 million instances are reported worldwide each year, and there are close to one million fatalities. With the intention of eradicating malaria, the United Nations included it as one of the Millennium Development Goals. According to the World Malaria Report 2015 [1], India accounts for 70% of the total incidence of malaria in the South-East Asia Region, and three countries, including India, account for more than 80% of the Plasmodium vivax burden worldwide. Nearly half (46%) of the world's population is at danger, and two thirds of those are at stable risk, according to India alone [2]. It is endemic across 44 million km², or around one-third of the planet's land [3].

The species of falciparum, vivax, ovale, and malariae of the genus Plasmodium are responsible for the transmission of malaria. Malaria caused by Plasmodium vivax is spread over most of the world and may afflict more individuals than malaria caused by Plasmodium falciparum. Malaria fever is referred to as Vishamajwara (intermittent fever) in Ayurvedic literature. Fever has historical allusions in Vedic literature and is referred to as Takma in Atharvaveda. The importance of treating fever in Ayurveda is demonstrated by the fact that the Carakasamhita, the earliest comprehensive compendium of Ayurveda, begins its therapeutics section with the treatment of Jwara (fever). Ayurveda describes a variety of fevers, including SantataJwara, SannipataJwara, VishamaJwara, AbhishangaJwara, and AbhigataJwara, among others [4].

Intermittent fever, also known as VishamaJwara, is characterized by irregular onset (Vishama arambha) and remission (Visarga). According to Kashyapasamhita, VishamaJwara is produced when all three or two humours vitiate and enter Rasavaha dhamani (channels conveying rasa-type tissue constituents). This has an erratic start and remission, which makes it comparable to malarial fever.

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Malaria's clinical symptoms include fever with irregular start and remission, increased thirst, heaviness throughout the body, widespread body aches, headache, rigors, nausea, and vomiting, among others [5].

Malaria cases and fatalities are both rising significantly, and the issue has taken on new dimensions due to drug-resistant strains of *Plasmodium Vivax* and *Plasmodium Falciparum* and vectors that are resistant to chemical pesticides [6]. These significant barriers make it difficult to manage malaria, hence it is imperative to come up with other methods. Potential resistance to artemisinins, the primary component of first-line anti-malarial treatment in many nations, has been the subject of very concerning findings from South East Asia.

Aim and Objective

To evaluate the concept of Malaria and its Ayurvedic Management.

Methodology

The material related to Malaria and Vishama Jawara collected from different Article, Authentic Literature like, CCRAS Articles, PubMed, Ayu, etc.

Concept of Malarial Jwara

In his chapter on fever, Acharya Sushruta makes reference to the Samanya Nidana [7], which is the universal etiological factor for all fevers. The Charaka Samhita text book does not have a description like this. The different variables linked to the underlying cause of Jwara (fever) include Kashta (weapons, wooden tools, etc.), Mityayoga and Atiyoga of Panchakarma, traumatic encounters with Sastra, and Overexertion, Dhatukshaya (Dhatu depletion), dyspepsia, visha (mineral toxicity, vegetative toxicity, and toxic end products of the body) etc. are examples of such factors. Changes in Ritu (seasonal changes), Asatmya Sevana (injudicious usage of food), Mitya Ahara-Vihara Sevana (improper dietary practices), Prapakatha (following an inflammatory process).

When experiencing grief, due to the odor of Vishayukta Oushadi Pushpa (an allergic reaction to medication and pollens), or due to Graha's and the stars' fault, Improper delivery in women, Abhichara Karma or due to curse of Devata, Guru (God, teachers) etc., Kama, Krodha, Bhaya etc [8]. (Parapsychological factors), Abhishangaja Jwara (possession of evil spirits, infections etc.), Mitya Ahara and Vihara (unwholesome diet and activities) followed by newly delivered women or during first appearance of breast milk. Rituvypat, often known as seasonal disorders, is mentioned by Acharya Susruta in the chapter Ritucharya Adhyaya (chapter on seasonal regimens).

According to the Avyapana Ritu (normal sea-son), a locality's Jala and Oushadi would be beneficial to a person's health and will serve as a promoter of Prana, Ayu, Bala, Veerya, and Ojas (longevity and health aspects). But in the case of Ritu

Vyapat (seasonal complications), where the seasonal influence affects the Jala (water sources) and Oushadi (vegetation) of the Desha (locality/land), it will cause the onset of various disease conditions, such as Vishama Jwara (irregular or intermittent fever), due to various Adharmas (Mitya Ahara-Viharadi, Pranjaparada (volitional transgression), etc [9].

Sometimes, even in the right seasons, the Desha (locality/land) will be impacted by diseases like Kasa, Shvasa, Jwara (different respiratory disorders, fever), etc. owing to the effect of various actions like Adharma (sinful activities, unnaturalness, etc.). The administration of decoctions, also known as Kashaya Rasa Pradhana, makes excreta, especially feces, more stambitha (sticky), preventing them from separating from circulation channels or going through Paka (metabolism). As a result, they choose a side road that leads to the Vishama Jwara (regular or intermittent fever) manifestation.

Additionally, Acharya Susruta has provided detailed explanations of the specific etiologies linked to Vishama Jwara (regular or intermittent fever). The two alternatives, Svabhavaja Hetu (internal influences) and Agantuja Hetu (external factors), have been described by Acharya Sushruta. Following the treatment of various illnesses, the residual Dosha vitiated in Svabhavaja is capable of causing fever. Even the weakly vitiated Doshas get power from Dooshya (Dhatu, Mala, Kala) and manifest Vishama Jwara (irregular or intermittent fever). Emaciated people, someone who has recently been healed from illness instantly engaged in improper dietetics and lifestyle choices, etc. Extrinsic factors or Bhootabhish-anga (microbial illnesses) are responsible for the Agantuja Hetu (external factors) stated by Sushruta.

There are several etiologies for the vitiation of the doshas in the body, and Sushruta names a number of elements, referring to Samanya Jwara Nidana (generic etiological factors) as reasons that cause Jwara to form in the body [10].

The Sannipatika Jwara Nidana (caused by Tridosha participation), which is referenced in literature, also has to be evaluated in this context since Charaka claims that the Vishama Jwara is always Tridoshaja. irregular eating habits, fasting, changes in eating habits without adhering to a diet, and seasonal impacts residence close to mountains, consumption of hazardous water and chemicals, and inhalation of smelly substances incorrect Panchakarma treatments, improper dietary and lifestyle adjustments following body's Shodhana (eliminatory treatment), Improper Panchakarma treatments, improper adaptation of Ahara-Viharadi (diet and activities) after Shodhana (eliminatory therapy) of the body, abnormal labor, consumption of unwholesome regimen after delivery, and concurrent aggravation of two Doshas or three Doshas result in the manifestation of either Dvandaja or Sannipatika Jwara, respectively [11].

Table 1: Different etiologies for jwara and vishama jwara in particular have been identified by various scholars

Ahara	Vihara	Agantuja	Manasika	Anya
Ajeernaja	Ahitakara Vihara	Bhootaabhishanga	Shokaja	Rogotha
Payasakshiradhi	Divaswapana	Nakshatrapeedajanya	Manas-Jwara	Prapakatha
Apakwa dadhi	Maithuna after panchakarma	Abhicharaja		Kshayaja
Gramyaanupa Mamsa	Sheetopachara after pan-chakarma	Abhishapaja		Rituviparyaya
Virudha Ahara		Abhigathaja		Apaprasoothi Janya
Adhyasana		Vishaja, oushadipush-paganda Janya		Soothika Jwara
Ahitakara Ahara				Stanyavarana-janya
Adhika jalapana				
Kashaya Atise-vana				
Guru Asatmya Anna				

Reference Nagaraj S, Nidhin V. A Study on Vishama Jwara Nidana W.S.R to Risk Factors in Malarial Fever, IAMJ. Aug 2015;3:8.

Due to the vitiation of the three Doshas, all types of VishamaJwara (regular/intermittent fever) develop. However, the dominating Doshas are a cause of the problem. Jwara's occurrence at a specific moment is influenced by the strength or weakness of the seasons, day and night, Dosha, and Manas, as well as by previous deeds ^[12].

Even if Devadadi Grahas (due to God, bad spirits, etc.) and other Agantuja variables (external influences) may cause different diseases in a person suffering from Ashubha kar- ma (Mitya Ahara - Viharadi, Pranjapara-da, etc.), such reasons may not necessarily be the primary causes of the sickness. It is implied that these illnesses are brought on by Ashubha Karmas, which render the body vulnerable to illness ^[13].

Sadharana and asadharana nidana of vishama jwara

Charaka says that Asadharana and Sadharana Hetus ^[14] are the two causes of vyadhi in the chapter on epidemics, Janapadhodhwamsa. Asadharana Hetus (uncommon factors) depend on the vitiation of Vatadi Dosha that occurs as a result of diverse Mitya Ahara and Viharas and are Pratipurusha Niyata (depending on persons) variables. The recognized Nidanas that are discussed in writings mostly concentrate on these Asadharana Hetus. While Sadharana Hetus (common influences) have an impact on everyone, regardless of their Prakriti (body constitutions) or other circumstances affecting their health. These are the factors that affect the Janapadha (community) and cause the Janapa-dodhwamsa (epidemic): Vayu (air), Desha (land), Jala (water), and Kala (season/time). These illnesses will have such severe effects that a large region will be affected.

There are references to the role of factors other than the Asadharana Hetus (uncommon) in causing Jwara (fever) in the Samanya Jwara Nidana (general aetiological factors of fever) and the Sannipatika Jwara Nidana (etiological factors for fever due to vitiation of Tridosha) told by Sushruta and Charaka, respectively. In this situation, Hetu like Ritu Vyapat (climatic changes) becomes relevant. Both the Samanya Nidana of Jwara and the Sannipatika Jwara Nidana refer to Ritu Vyapat, which emphasizes the role played by Sadharana Hetus in the development of Vishama Jwara and its link to Janapadhodhwamsa (epidemic disorders). These Janapadhodhwamsa Vyadhi (epidemic disorders) may cause the development of Vishama Jwara (irregular or intermittent fever) after vitiating the Jala (water), Desha (land), and Kala (season).

Classification of Nidana

After entering any of the Dhatus, mild aggravation of the Doshas caused by unsuitable dietetics and behavior results in Vishama Jwara. Emaciation, discolouration, lassitude, etc. result from the milder Vishama Jwara that lurks in the Rasadi dhatus when the Doshas that cause Vishama Jwara lessen.

Viprakrishta Hetu

Vyayama, Divaswapna, Kashaya Sevena, etc. (factors include nutrition that is not conducive to the body, excessive exercise, daytime sleep, astringent-tasting foods, etc.). These kinds don't instantly cause sickness, but their cumulative or delayed impacts do so over a set amount of time.

Vyabhichari Hetu

The variables that affect how a disease may or may not emerge in an individual are etiological factors, Dosha, and Dooshya. When Nidana, Dosha, and Dooshya's equilibrium state is disturbed, when they don't support one another, or when they are weak due to temporal factors, disease may not manifest or may manifest slowly, or it may manifest but be mild, or its symptoms may not be properly expressed. When these three are somewhat or significantly favorable to one another, the outcome might be contrary. In other words, the disease may reveal itself simply, immediately, or with full expression of its symptomatology.

Pradhanya Hetu

Microbes, a divine curse, bad demons, etc. Bhootabhisanga, Devata-Grahaprakopa.

Chikitsa (Management) of Vishama Jawar

Godanti Bhasma: 1. One part of purified kasisa mixed with seven parts of purified Godanti, triturate Kumari swaras and apply Gajaputa heat. Within one puta Red colored bhasma is prepared which is very good in Pandu - Roga.

Dose - 1/2 to 1 Gram.

Anupana - Honey, Milk, Ghrita

Procedure – Bhavana

Apparatus

- Pashan Khalvayantra
- Knife

Drugs

1. Pure Kasisa – 1 Part
2. Pure Godanti (Powder) – 7 Part
3. Ghritkumari swarasa (Pulp) – Qs for Bhavana

Procedure – 1 Part of purified Kasisa was transferred into clean, dry Khalva yantra, pure Godanti powder-7 Part was

added into it, in divided quantities with continuous dry trituration to achieve a homogenous mixture. After the homogenous mixing the Ghritakumari pulp was added into it, in little quantity with continuous trituration. Addition of Ghritakumari pulp along with trituration was maintained up to the level that the whole mixture gets converted into liquid. Trituration is continued until a thick uniform paste was formed. Chakrika's of 3 cm diameter and about 0.5 cm thickness are prepared and kept in sharva. Chakrikas were kept in sunlight for drying.

Observation & Inference

1. Dry homogenous mixture of Kasisa and Godanti gives slight greenish ting.
2. Heavy trituration is required for formation of homogenous paste.
3. After the addition of Ghritakumari pulp the mixture colour changed to yellowish green.
4. Chakrikas were dried for 12 hours.

Stage IV Marana (Incineration)

Put Required – 1 Gajaputa

The process of incineration involves two stages

1. Preparation of Sharav Samputa
2. Put (Pak) process.

1. Preparation of Sharav Samputa

Apparatus

1. Earthen Sharava D = 24 cm.
2. Thickness = 0.8 cm.
3. Circumference = 45 cm.
4. Vastra Length = 45 cm.
5. Width = 5 cm.
6. Fine, filtered Gopichandan Mruttika = 150 Gms.
7. Broad & thick thread

Drugs –Kasisa Godanti Chakrikas 270 Gms (Wt. of each Chakrika 15 to 18 Gms)

Procedure

The earthen sharava of equal diameter, circumference & equal thickness were taken. The sharp bordered were made rough by rubbing on rough or sandy surface with uniform force. The Sharavas were washed with purified water & dried well. The well dried chakrikas were arranged in a sharava and another sharava placed on it to form samputa. Sharavas were sealed with mrittika lepita thread so as to become airtight. White cloth of mentioned measurement was taken, washed well and wrapped with uniform layer of Gopichandan Mruttika (wet). Cloth is wrapped along the circumference of the sharavas without any gap. Sharava is kept aside for drying of sandhibandhana. After complete dryness another layer is applied such 7 layers were applied for each sharava thus the process of sandhibandhana is completed. In such a way 6 sharavas were prepared and marked as 'A', 'B', 'C', 'D', 'E', 'F'.

2. Put-Paka-Name of Puta-Gajaputa

A) Apparatus

Pit for Gajaputa Length = 90 cm, Breadth = 90 cm, Height = 90 cm

B) Cow dung Cakes No – 1000 (20 Kg)

Content of Cow dung cakes

- Cows dung.
- Charcoal Particles.
- Husk of Rice.

C) Heat Produced

Procedure

700 cow dung cakes were arranged in a Gajaputa pit without any gap. The Sharavas 'A' was kept in the middle and covered with 300 cow dung cakes. The cow dung cakes were subjected to fire. After swangashitata the Sharavas were removed from pit. Same procedure is applied for all the Sharavas. The sandhibandhana was opened carefully and light red colour bhasma was obtained in the form of chakrikas.

Observation & Inference

1. Rough margins, helps in airtight fixation of samputa.
2. Washing and drying of Sharavas avoids mud or sand impurities in bhasma.
3. Application of mud – wrapped thread helps in airtight fixation of samputa.
4. Washing of white cloth removes starch or gum from the cloth.
5. Fine and Filtered Gopichandan Mruttika avoids air bubble or Gap formation in sandhibandhana.
6. Application of second layer after drying of 1 layer helps in strong fixation between the layers.
7. Uniform arrangement of cow dung cakes in pit helps to maintain position of Sharavas as it is and helps in regulation of uniform heat from all side.
8. 8.36 hours were required for complete swangashitata.
9. Careful opening of Sharavas – samputa avoid falling of mud or ash into the bhasma

Discussion

Vishama Jwara Nidana was taken into mind for the same among the different Jwara Nidana (etiological elements of fever), along with Samanya Jwara Nidana (general aetiology as given in Sushruta Samhita) and Sannipatika Jwara Nidana (etiological factors as indicated in Charaka Samhita) [14]. After being divided into five categories, the many Nidanans (aetiological elements) mentioned in the literature were examined further. Aharaja, Viharaja, Manasika, Agantuja, and Anya Nidanans (circumstances influenced by one's everyday activities, food, and other factors, including mental and external ones).

All patients who had Aharaja (dietary) factors had a history of eating Mitya Ahara (an inappropriate diet). A person's diet must be based on their Prakriti (food item nature), Kara- na (processing technique), Samoyoga (combinations that make food wholesome or unwholesome), Rashi (food quantity), Desha (habitat), Kala (depending on their state as well as their sea- son), Upayoga Samstha (rules governing intake of food), and Upayokta (individual wholesomeness). These operate as etiological variables for the genesis of Vishama Jwara (irregular or intermittent fever) when performed against the Ashtavidha Ahara VidhiVishesha Ayathana (factors influencing usefulness of food product) [15].

All patients with Vishama Jwara (regular or intermittent fever) were found to have Bhootabhishanga (a plasmodium species in the case of malaria) as one of the Agantuja Nidana (external causes). The patients with Vishama Jwara (regular or intermittent fever) were found to have absent levels of all other Agantuja variables. The study's consideration of a

number of additional Viharaja Nidanas (routine activities), Manasika Nidanas (mental elements), and Anya Nidanas (other aetiological factors) reveals that particular socioeconomic and climatic changes have a significant impact on the beginning of vishama Jwara (irregular or intermittent fever) [16].

Consideration must be given to the importance of the kala (season) in this aspect. The results of the observational study indicate that in addition to Bhootabhishanga, the external cause of Vishama Jwara (irregular or intermittent fever), which is caused by microbes or plasmodium species, many other factors, including Aharaja (dietary), Viharaja (routine activities), Manasika (mental factors), and Anya Nidanas (other aetiological factors), may hasten the onset of Vishama Jwara [17].

Conclusion

By taking into account the information presented above, which was gleaned from the critical analysis of Vishama Jwara Nidana (aetiological factors of fever of irregular pattern) in various Ayurvedic text books, it can be said that both internal and external factors play a significant role in the development of Vishama Jwara (irregular or intermittent fever). A person in the Jwara Mukta Avasta (after relief from fever) or a Krishna (who is weak due to emaciation due to physiological reasons or due to a disease) on consuming Mitya - Ahara Viharadi, the already mildly aggravated Doshas vitiate further, get excited by Vata, and produce different types of vishama Jwara depending upon the sites of kapha in successive order. These Jwara will be distinguished by their Vishama (irregular) Arambha (onset), Kriya (course), and Kala (period of assault) of Jwara. Bhutadi (external influences, such as germs) has been recognized by Sushruta as the Parahetu (primary cause) of Vishama Jwara (irregular or intermittent fever). Thus, it is clear that Vishama Jwara is a condition with several etiological factors. It wouldn't be incorrect to state at this point that all vyadhi, especially Vishama Jwara/malaria fever, may be attributed to the Adharma (sinful acts) prevalent in society, whether at the individual or social levels.

Conflict of interest: Nil

Source of support: None

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