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Therapeutic Potential of Gagana Parpati in the Management of Tamaka Shwasa: A Scientific Perspective

Dr Seema Malik*, Dr Rajeshwari V. Kamat**

*Final year PG Scholar Department of Rasashastra and Bhaishajya Kalpana
Shri BMK Ayurveda Mahavidyalaya Postgraduate Studies and Research Centre
A Constituent unit of KLE Academy of Higher Education and Research Centre, Deemed to be University, Belagavi,Karnataka

**Professor of Department of Rasashastra and Bhaishajya Kalpana
Shri BMK Ayurveda Mahavidyalaya Postgraduate Studies and Research Centre
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ABSTRACT:
Rasashastra, a specialized discipline within Ayurveda, explores the medicinal properties of mercury and its derivatives, particularly Parada, prized for their potency, convenience in administration, and purported longevity benefits. Respiratory disorders, such as bronchial asthma, pose a significant public health burden globally, affecting millions of individuals. In Ayurveda, Tamaka shwasa bears resemblance to bronchial asthma, suggesting a potential correlation and alternative therapeutic approaches. ParpatiRasayanas, including GaganaParpati, derived from mercury, are renowned for their efficacy in gastrointestinal disorders, with emerging evidence indicating broader therapeutic applications. This article aims to delve into the expanded therapeutic potential of ParpatiRasayanas, with a specific focus on Gagana Parpati, and critically assess its efficacy in addressing Tamaka Shwasa, characterized by cough and dyspnea. Through a scientific investigation into the pharmacological mechanisms underlying Gagana Parpati's effects on respiratory ailments, this study provides valuable insights into its potential as a remedy extending beyond gastrointestinal disorders, thus contributing to the understanding and advancement of Ayurvedic pharmacotherapy.

Keywords: Rasashastra, Parada, Gagana Parpati, Tamaka Shwasa, respiratory disorders, pharmacological mechanisms, Ayurvedic pharmacotherapy.

I. INTRODUCTION:

Parpati Kalpana, classified as one of the ChaturvidhaRasayanas, represents a specialized Ayurvedic procedure involving the purification of mercury through controlled heat and herbal adjuncts. This transformation yields a solid, flake-like form of mercury suitable for managing gastrointestinal ailments such as irritable bowel syndrome, diarrhea, and hemorrhoids.Parpati formulations are esteemed for their efficacy, minimal toxicity, and economic viability. The process of purification not only enhances digestibility but also prolongs shelf life, with aged preparations often deemed more potent.[1] Its therapeutic significance is well-documented in classical Ayurvedic texts, affirming its integral role in Ayurvedic pharmacopeia.

Gagana Parpati[2] represents a specific variant of Parpati formulation within Ayurveda.It contains Shuddha parada, Shuddhagandhaka, AbhrakaBhasma. Its therapeutic efficacy, low toxicity profile, and potential cost-effectiveness align with the broader characteristics of Parpati formulations.

Tamaka Shwasa[3], a term delineated in Ayurvedic literature, manifests as nocturnal exacerbations of dyspnea, leading the afflicted individual to perceive an encroaching darkness during attacks. Bronchial asthma[4], a widely recognized hypersensitivity disorder, is characterized by compromised ventilatory function, attributed to an exaggerated immune response. This chronic ailment prevalent in modern society is intricately linked to heightened stress on the immune system induced by environmental pollutants present in the air, water, and food.

Aims and objectives
Aim: To Study Gagana Parpati's effectiveness for Tamaka Shwasa.
Objective: To Uncover its pharmacological mechanisms for evidence-based integration.

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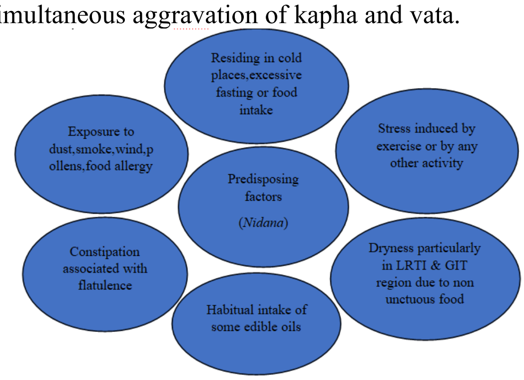
Ayurvedic disease review

Etiology of Bronchial Asthma[5]

In Ayurveda, the body's physiological aspects are governed by vata, pitta, and kapha, collectively known as dosha. Disease is viewed as a state of dosha imbalance, influenced by factors like genetics (prakruti) and environmental triggers. Understanding illness involves assessing dosha imbalance and the specific pathogenesis it follows, leading to varied symptom manifestation. Factors contributing to dosha imbalance include the diminution of balancing elements. For instance, in bronchial asthma, dosha imbalance occurs due to simultaneous aggravation of kapha and vata.



Pathogenesis of Bronchial Asthma[6]

Asthma genesis involves two key conditions: aggravation of kapha and vata in the upper gastrointestinal tract and obstruction of respiratory nourishment channels. Pathogenesis unfolds in two steps: the development of bronchial hyperresponsiveness predisposition and acute exacerbation generation.

Step-1: Aggravated vata, due to kapha and vata imbalance in the upper gastrointestinal tract, causes excessive catabolism in the respiratory system, particularly the bronchial areas. Simultaneously, blockage of nourishment channels results in malnourishment of respiratory tissues, notably the bronchial epithelium. This primes the bronchial epithelium for hyperresponsiveness, ultimately leading to acute exacerbations.

Step-2: Excessive aggravation of vata and kapha can precipitate acute exacerbations in patients with bronchial hyperresponsiveness. This leads to increased mucous production and bronchial constriction. The recurrence and severity of asthma depend on individual exposure to these factors, influencing terminal curability according to Ayurveda.

Types Of Tamaka Shwasa[7]

Pratamaka Shwasa: Tamaka Shwasa, marked by fever and fainting, indicates Pitta Dosha involvement. Aggravating factors include Udavarta, dust, humidity and suppression of natural urges. Despite cooling regimens being typically causative, they alleviate symptoms in PratamakaShwasa due to Pitta Dosha's role.

SantamakaShwasa: When the patients of PratamakaShwasa feels submerged in darkness, the condition is called as SantamakaShwasa.

Chakrapaniviews them as synonymous, but Charaka[8] differentiates them as representing varying intensities of Tamaka Shwasa.

Modern Disease Review

Asthma[9] is characterized by heightened responsiveness of the airways, causing spasmodic narrowing and leading to symptoms like dyspnea, cough, and wheezing. While often episodic, severe cases, known as status asthmaticus, can be life-threatening.

Prevalence[10]

Asthma affects 5-10% of the world's population, with most cases developing before age 40. It's more common in early life, with a 2:1 male-to-female ratio in childhood, but this evens out by age 30.

Etiopathogenesis and Types[11]

Bronchial asthma is broadly categorized into allergic (extrinsic) and non-allergic (intrinsic) types, with a mixed pattern also recognized.

1. Extrinsic (Atopic, Allergic) Asthma

This common type of asthma typically starts in childhood or early adulthood and is associated with allergies. It's triggered by inhaling allergens like dust, pollen, and animal dander. Elevated IgE levels and positive skin tests confirm the allergic nature. The reaction involves acute and late-phase responses, causing bronchoconstriction, inflammation, and mucus secretion.

2. Intrinsic (Idiosyncratic, Non-Atopic) Asthma

This adult-onset asthma lacks allergy history, with negative skin tests and normal IgE levels. Symptoms often follow respiratory viral infections, with nasal polyps and chronic bronchitis common. While no specific allergens are identified, about 10% may develop drug hypersensitivity, especially to aspirin.

3. Mixed Type: Some asthma patients exhibit mixed features of both allergic and non-allergic

asthma. Late-onset cases often lean towards non-allergic presentations.

Gagana Parpati Review[12]

It is mentioned in Siddhayoga Sangraha Grahani Rogadhikara, containing Kajjali (composed of Shuddha Parada 1 part and Shuddha Gandhaka 2 parts) along with Abhraka Bhasma (1 part) with a recommended dosage ranging from 125 to 250 mg.It is administered with various Anupanas such as bhrushta Jirak Churna, Takra, Milk, or Honey. The indications for its usage include Pandu (anemia), Grahani (malabsorption syndrome), Atisara(diarrhea), Kshaya (emaciation), Kasa (cough), Shwasa (asthma)and Mandagni (weak digestion).

Kajjali[13] is renowned for possessing several pharmacological properties contributing to its therapeutic efficacy.

These include:

1. Rasayana: Implying anti-aging attributes, suggesting potential rejuvenating effects.
2. Yogavahi: Acting as a catalyst, facilitating the transportation of substances to target tissues, thereby enhancing the potency and bioavailability of co-administered medications.
3. Jantughnata: Exhibiting antimicrobial properties, indicative of its potential in combating microbial pathogens.
4. Shwasa Kasa Tamakaamyaapahaya: used in respiratory disorders.
5. Sarvaamayahara: Suggesting a broad-spectrum effect, implying efficacy against a wide range of diseases or conditions.

The Yogavahi property is particularly noteworthy as it enhances drug bioavailability, though there exists some debate regarding its absorption in the gastrointestinal tract. While some propose its role as a gastrointestinal stimulant, others suggest its absorption and enhancement of herbal drug absorption. Internally, Kajjali is believed to balance the Tridosha and may possess aphrodisiac effects, thereby complementing its therapeutic utility.

Abhraka Bhasma, on the other hand, is employed in the treatment of various ailments including gastritis, anorexia, renal diseases, respiratory diseases, hepatic dysfunction, anemia, stroke, asthma, bone marrow depletion, leukemia, ascites, and diabetes. It is also esteemed as a Rasayana, functioning as a rejuvenator, aphrodisiac, and anti-aging agent.

Scientific evidence supports its hepatoprotective[14], anti-diuretic[15],anti-stress[16], anti-inflammatory[17], immunomodulatory[18], adaptogenic,memory-enhancing, anti-cancer[19] and anti-diabetic[20] activities.

II. DISCUSSION

As Samprapati/Pathogenesis of the disease is like that

Nidana Sevan :Rajodhuma,Prag-Vata sevana,Marmaghata,Vata-Kapha Prakopaja Ahara Vihara etc.

↓

Sanchaya Avastha- sanchaya of vata occurs in pranavahasrotas and kapha in urasa

↓

Prakopa Avastha- Sheetakaala & durdina etc. will increase the sanchita doshas.
As a resultvata in pranvaha srotas and
kapha in uras tries to move to other places

↓

Prasara Avastha- vitiated doshas hampers the agni and causes agnimandaya & produces ama
Both vata &kapha begins to move all over their aashaya

↓

Sthana Samshraya Avastha – the aggravated dosha moving all over the body as well in pranavaha srotasa,will lead to kha-vaigunyata. there will be obstruction to the movement of vata and as a result of this, prodromal features of the disease are manifested.

Vyakata Avastha- Prakupitavata which is obstructed by kapha will attain pratilomagati,results in vimargagamana of kapha from annavaha and udakavahasrotas.Peenasa and Ghurghuraka etc.symptoms manifest.

Bheda Avastha- it will lead to Deerghakala Anubandhyatva

And it is told by Acharya Charaka,in Shwasa vatahara chikitsa is best. Brihamana and shamana chikitsa can resolve the disease. As by doing brihamana, kapha will aggravate and it will come out and vata can also be pacified by brihamana due to contrary characteristics.

Gagana parapti will do both work brihamana and shamana also.

Gagana Parpati[21]is comprised of Shuddha Parada (purified mercury), Shuddha Gandhaka (purified sulphur) i.e. Kajjali and Abhraka Bhasma (processed mica). These components collectively exhibit properties that are pertinent to the management of Kapha and Vata dosha-related disorders, alongside enhancing digestive functions and alleviating respiratory ailments. The inclusion of Shuddha Parada acts as a crucial component in augmenting the therapeutic efficacy of the formulation. Parada is recognized for its multifaceted pharmacological actions, including its ability to balance all three doshas (Vata, Pitta, and Kapha) in the body. Furthermore, it acts as a Yogavahi, enhancing the potency of other ingredients such as Gandhaka and Abhraka. Additionally, Parada demonstrates Vrishya (aphrodisiac), Balya (tonic), and Rasayana (rejuvenative) properties, while also promoting wound healing (Vrana shodhana and ropana) and antimicrobial activity (Krimighna).[22]Shuddha Gandhaka contributes to the parapti formulation's efficacy by exerting Kapha and Vata-hara properties, alongside its roles as Deepana (digestive stimulant) and Kasa-shwasahara (relieving cough and asthma).[23],[24] Moreover, Gandhaka's involvement in cellular oxygen utilization processes underscores its significance in metabolic functions and detoxification mechanisms within the body. Abhraka Bhasma complements the formulation with its Vata and Pitta alleviating properties, alongside its Deepana and Kasa-shwasahara actions, making it beneficial in respiratory ailments such as asthma and bronchitis.[25],[26] Experimental validation of Abhraka Bhasma's anti-inflammatory properties further strengthens its therapeutic relevance, particularly in mitigating allergen-induced inflammation and oxidative stress associated with asthma. [27]

Collectively, the synergistic actions of Parada, Gandhaka, and Abhraka in Gagana Parpati not only address Kapha and Vata imbalances but also enhance digestive functions and alleviate respiratory distress. This amalgamation of traditional Ayurvedic ingredients underscores the potential of Gagana Parpati as a valuable adjunct therapy in the management of various ailments, particularly those related to respiratory and digestive disorders.

III. CONCLUSION

In conclusion, Gagana Parpati, with its unique blend of Shuddha Parada, Shuddha Gandhaka, and Abhraka Bhasma, offers a promising avenue in the management of respiratory ailments such as asthma. Harnessing the synergistic actions of its constituents, Gagana Parpati addresses imbalances in Kapha and Vata doshas, while also enhancing digestive functions. Furthermore, experimental validation of the anti-inflammatory properties of Abhraka Bhasma underscores its potential in mitigating allergen-induced inflammation associated with asthma. Thus, Gagana Parpati emerges as a valuable adjunct therapy in the holistic management of asthma, providing relief through its multifaceted approach grounded in the principles of Ayurveda.

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