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Review Article

THE INTERFACE OF *AGNI* AND HOMEOSTASIS: A COMPARATIVE PATHOPHYSIOLOGICAL ANALYSIS OF *JWARA* AND PYREXIA

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ABSTRACT

Fever, or pyrexia, is a universal clinical sign of illness, yet its management and conceptual understanding differ between Western medicine and Ayurveda. In Ayurveda, *Jwara* is considered the "Lord of all diseases," involving a complex interplay of *Dosha*, *Agni* (digestive fire), and *Srotas* (channels). **Objective:** This review aims to synthesize Ayurvedic *Samprapti* (pathogenesis) with modern physiological mechanisms of pyrexia and thermoregulation. **Methods:** A literature review was conducted using classical Ayurvedic *Samhitas* (*Charaka*, *Sushruta*, and *Ashtanga Hridaya*) and modern medical textbooks. **Results:** The study identifies that *Jwara* begins in the *Amashaya* (stomach) and involves the displacement of *Agni* to the periphery. This correlates precisely with the hypothalamic resetting of the body's "set point" via endogenous pyrogens like Interleukin-1 (IL-1) and Prostaglandin E2 (PGE_2). Intermittent patterns like *Tritiyaka* and *Chaturthaka Jwara* match the erythrocytic cycles of Malaria. **Conclusion:** Integrating the Ayurvedic focus on *Langhana* (fasting) and *Srotoshodhana* (channel clearing) with modern antipyretic understanding offers a holistic approach to managing febrile illness. The article highlights that symptomatic treatment addresses the root metabolic shift (*Santapa*), reinforcing *Jwara Chikitsa* as the foundational framework for all therapeutics.

INTRODUCTION

Pyrexia, derived from the Greek word *Pyr* meaning "fire," is defined as an elevation of body temperature above the normal circadian range. In the Ayurvedic tradition, *Jwara* is not merely a symptom but a comprehensive disease state characterized by *Deha-Manasa-Santapa*- the simultaneous distress of body and mind. [1]

Normal human core temperature is maintained between 36°C and 37°C (97°F-99°F). This equilibrium is managed by the thermoregulatory center in the anterior hypothalamus.[4]

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Ayurveda views this balance through the lens of *Agni* and *Pitta*. When the equilibrium between heat production and heat loss is disturbed, fever ensues.[15] This article explores the common ground between the Ayurvedic *Samprapti* of *Jwara* and modern pathogenesis involving pyrogens, cytokines, and physiological shifts. [6]

METHODS

This literature review utilized a comparative analysis of:

1. **Classical Texts:** Classical Ayurvedic text books like *Charaka Samhita*, *Sushruta Samhita*, and *Ashtanga Hridaya.* [1, 2, 3]
2. **Modern Medical Texts:** Standard physiology and pathology references regarding thermoregulation.[4, 5]
3. **Search Strategy:** Keywords such as "*Jwara Samprapti*," "Endogenous Pyrogens," and "Hypothalamic Set-point" were used to identify overlaps in pathophysiology.[19]

RESULTS

1. Modern Physiology of Thermoregulation

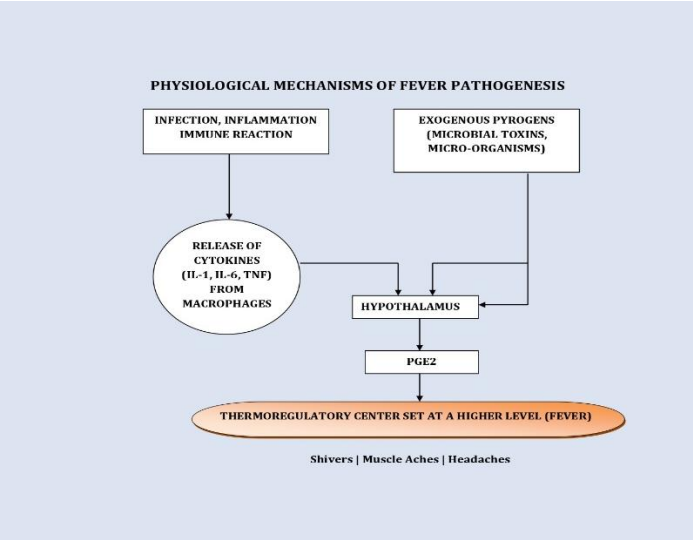
The body maintains a "heat balance" where the rate of heat production equals the rate of heat loss. This is regulated by the Preoptic Area (POA) of the anterior hypothalamus.[4]

- **Detection:** Thermoreceptors in the hypothalamus detect blood temperature, while skin receptors detect external temperature.
- **Response to Cold:** The body triggers shivering (skeletal muscle contraction), vasoconstriction via norepinephrine, and increased metabolic rate via the adrenal and thyroid glands. [16]
- **Response to Heat:** The body triggers vasodilation and sweating (sweat glands) to release heat.[5]

2. Pathogens of Fever: Pyrogens and *Nija Vyadhi & Agantuja Vyadhi*

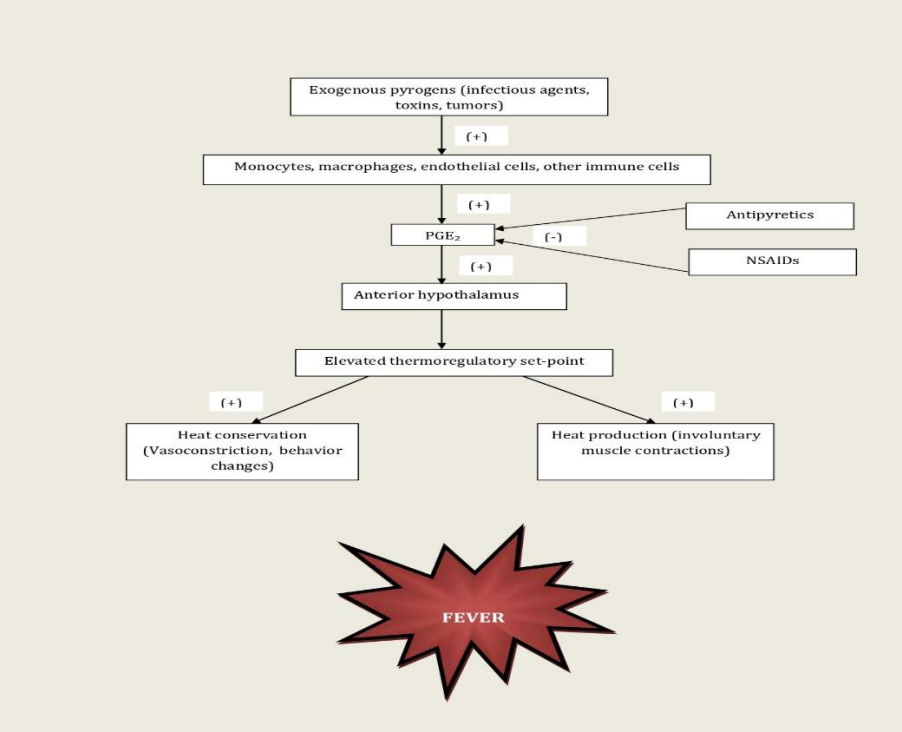
Modern medicine classifies fever-inducing substances as pyrogens. This mirrors the Ayurvedic classification of diseases (*Vyadhi*):

Figure 1: Physiological mechanisms of fever pathogenesis



- **Exogenous Pyrogens/*Agantuja Vyadhi*:** Substances derived from outside the patient, such as microbial toxins, viruses, or bacteria.[16] In Ayurveda, *Agantu* refers to external factors that enter the body.
- **Endogenous Pyrogens/*Nija Vyadhi*:** Internal substances like cytokines (IL-1, IL-6, TNF) released by macrophages in response to infection or inflammation.[14] This correlates with *Nija Vyadhi*, arising from internal *Dosha* imbalance.

Figure 2: Pathophysiological Mechanism of Fever and the Role of Pyrogens



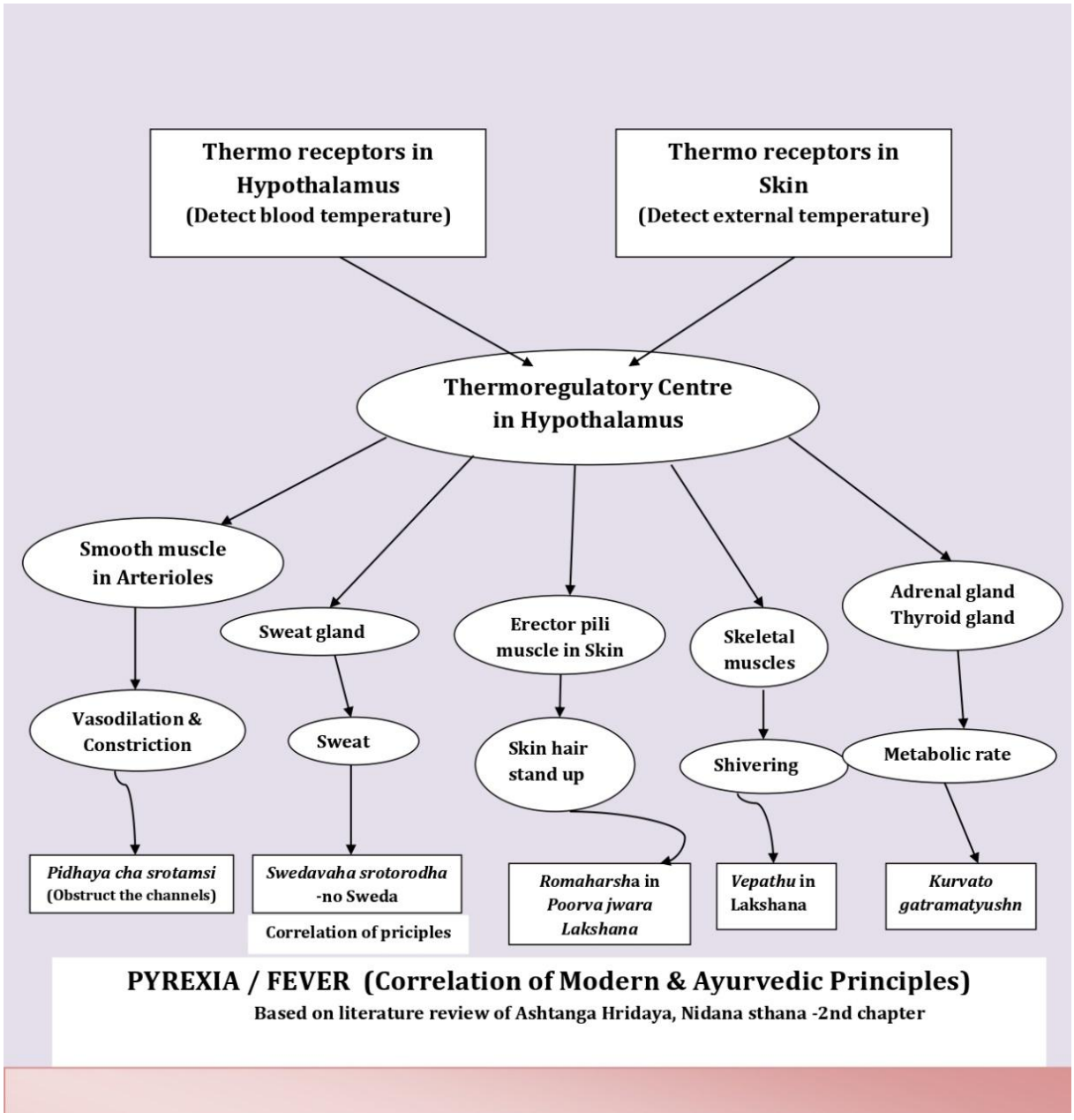
3. Comparative Pathogenesis *(Samprapti)*

According to *Ashtanga Hridaya*, the *Samprapti* of *Jwara* involves physiological shifts that align with modern pathophysiology.[1]

Table 1: Comparison of Ayurveda *Samprapti* and Modern Physiological Mechanism

Ayurvedic Concept *(Samprapti)*	Modern Physiological Mechanism
Pidhaya Srodhamsi (obstruction of channels)	Vasoconstriction: Smooth muscles in arterioles constrict to prevent heat loss during the "chill" phase.[5]
Swedavaha Srothorodham (obstruction of sweat channels)	Sweat gland inactivity: Failure of sweating mechanisms to release core heat. [4]
Romaharsha (body hairs standing on end)	Erector pili muscles: Contraction of these muscles causes hair to stand up to trap heat. [4]
Vepathu (shivering or tremors)	Skeletal muscle Contraction: Rapid contraction of muscles to generate heat. [17]
Gatramatyushnam (extreme heat in the body/limbs)	Metabolic surge: Increased metabolic rate via adrenal/thyroid glands to raise core temperature. [7]

Figure 3: Integrated Correlation of Ayurvedic and Modern Principles in Thermoregulation and Fever



DISCUSSION

The Mechanism of Heat Displacement

Ayurveda posits that *Jwara* occurs when *Agni* is displaced from its primary seat in the *Amashaya* (stomach) into the *Rasa Dhatu* (plasma/circulation). [12] Modernly, this is seen when cytokines trigger the production of Prostaglandin E_2 (PGE_2).[7] PGE_2 crosses the blood-brain barrier and resets the hypothalamic set-point to a higher level, effectively "displacing" the body's normal thermal equilibrium. [4]

Intermittent Fevers: *Vishama Jwara* vs. Malaria

The *Vishama Jwara* descriptions provide early clinical observations matching modern protozoal patterns.[11]

- ***Tritiyaka Jwara* (Tertian Fever):** Occurs every 48 hours, correlating to Tertian Malaria (*P. vivax*).[11]
- ***Chaturthaka Jwara* (Quartan Fever):** Occurs every 72 hours, correlating to Quartan Malaria (*P. malariae*). [11]

Table 2: Ayurvedic and Modern Types of *Jwara* According to Clinical Patterns

Ayurvedic Type of *Jwara*	Clinical Pattern	Modern Diagnostic Equivalent
Santata Jwara	Continuous fever without remission	Typhoid (enteric) fever, brucellosis
Anyedyushka Jwara	Occurs once every 24 hours	Quotidian fever/sepsis
Tritiyaka Jwara	Occurs every 3rd day (48 hrs)	Tertian malaria (P. vivax)
Chaturthaka Jwara	Occurs every 4th day (72 hrs)	Quartan malaria (P. malariae)

Table 3: Classification and Grades of Fever

Type	Celsius (°C)	Fahrenheit (°F)
Normal	36.7–37.2	98–99
Mild fever	37.2–37.8	99–100
Moderate	37.8–39.4	100–103
High fever	39.4–40.5	103–105
Hyperpyrexia	>40.5	>105

Therapeutic Correlation: *Langhana* and *Amapachana*

In Ayurveda, disease-specific and personal treatment is prioritized. Symptomatic treatment is effective because it targets the underlying *Ama*[12]. *Langhana* (fasting) is the priority to "digest" the *Ama*- the functional equivalent of clearing pyrogens and cytokines from the system.[2] *Jwara Chikitsa* is considered the main in all treatment principles because it addresses this systemic metabolic shift (*Santapa*).

CONCLUSION

The correlation between *Jwara* and pyrexia is profound. Whether described as the displacement of *Agni* or the resetting of the hypothalamic set-point, the result is the same: a systemic metabolic shift. By aligning observations like *Vepathu* with modern understandings of muscle activity, clinicians can treat patients more effectively through a holistic, dual-science framework.

REFERENCES

1. Vagbhata. Ashtanga Hridaya, Nidana Sthana; Chapter 2, Jwara Nidana. In: Murthy KR, editor. Illustrated English translation. 11th ed. Varanasi: Chowkhamba Krishnadas Academy; 2016.
2. Punarvasu A, Charaka. Charaka Samhita, Chikitsa Sthana; Chapter 3, Jwara Chikitsa. In: Sharma RK, Dash B, editors. Varanasi: Chowkhamba Sanskrit Series Office; 2017.
3. Sushruta. Sushruta Samhita, Uttara Tantra; Chapter 39, Jwara Pratishedha. In: Sharma PV, editor. Varanasi: Chaukhambha Visvabharati; 2014.
4. Hall JE, Hall ME. Guyton and Hall Textbook of Medical Physiology. 14th ed. Philadelphia, PA: Elsevier; 2020.
5. Kumar V, Abbas AK, Aster JC. Robbins & Cotran Pathologic Basis of Disease. 10th ed. Philadelphia, PA: Elsevier; 2020.
6. Dinarello CA. Infection, fever, and exogenous and endogenous pyrogens: some concepts have changed. J Endotoxin Res. 2004; 10(4): 201-22.
7. Saper CB, Breder CD. The neurologic basis of fever. N Engl J Med. 1994; 330(26): 1880-6.
8. Mackowiak PA. Concepts of fever. Arch Intern Med. 1998; 158(17): 1870-81.
9. Mukhopadhyaya GN. The Surgical Instruments of the Hindus. Vol. 2. Calcutta; Calcutta University Press; 1913. p. 225-230.
10. Singjhal GD. Susrutasamhita Vol. II (Sarira, Cikitsa, and Kalpasthana). Delhi; Chaukhamba Sanskrit Pratishtahan; 2007. p. 429.

11. Madhavakara. Madhava Nidana, Jwara Nidana; Chapter 2. In: Upadhyaya Y, editor. Varanasi: Chaukhambha Sanskrit Bhawan; 2020.
12. Vagbhata. Ashtanga Hridaya, Chikitsa Sthana; Chapter 1, Jwara Chikitsa. Varanasi: Chowkhamba Krishnadas Academy; 2016.
13. Atkins E. Fever: Its History, Causes, and Function. Yale J Biol Med. 1982; 55(3-4): 283-9.
14. Blatteis CM. The role of the cytokines in fever. Eur J Med Res. 2002; 7(5): 185-92.
15. Dash B. Fundamentals of Ayurvedic Medicine. Delhi; Konark Publishers; 1999.
16. Fauci AS, et al. Harrison's Principles of Internal Medicine. 20th ed. New York: McGraw-Hill; 2018.
17. Kluger MJ. Fever: Its Biology, Evolution, and Function. Princeton; Princeton University Press; 1979.
18. Sharma PV. Dravyaguna Vijnana. Vol 2. Varanasi: Chaukhambha Bharati Academy; 2005.
19. Hypertension, Dialysis & Clinical Nephrology. Hinsdale (IL): Medtext, Inc.; c1995-2001 [cited 2001 Mar 8]. Available from: http://www.medtext.com/hdcn.htm.

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