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A conceptual analysis of *dhatvagni* dysfunction as a root mechanism in endocrinal disorders: an integrative *ayurvedic* perspective

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ABSTRACT: *Dhatvagni*—the metabolic fire residing in each tissue (*dhatu*)—is central to the Ayurvedic understanding of internal homeostasis and systemic health. Contemporary endocrinology similarly focuses on regulatory mechanisms that maintain metabolic, reproductive, and hormonal balance. This conceptual review explores *Dhatvagni* dysfunction as a core pathological mechanism underlying major endocrinal disorders including diabetes mellitus, thyroid dysfunction, polycystic ovarian syndrome (PCOS), obesity, and adrenal imbalances. Classical Ayurvedic references describe that hypo- or hyper-functioning of *dhatus* leads to improper tissue nourishment (*dhatu poshana*) and altered metabolic by-products, which parallel impaired hormonal synthesis, secretion, and feedback regulation. This paper integrates Ayurvedic theory with modern endocrine physiology, proposing *Dhatvagni* as an indigenous framework for understanding endocrine pathogenesis. The analysis highlights potential therapeutic implications of *Deepana-Pachana, Rasayana*, and dhatu-specific interventions for restoring metabolic equilibrium. *Dhatvagni*-centered models may enrich holistic approaches and bridge *Ayurveda* with modern endocrinology.

KEYWORDS: *Dhatvagni*, *Agni*, *Dhatu*, Endocrinal Disorders, Metabolism, Hormonal Imbalance.

INTRODUCTION: Ayurveda identifies Agni as the primary regulator of biological transformation, metabolism, and vitality. Beyond Jatharagni, Dhatvagni[1] is the most significant tissue-specific metabolic force responsible for nourishment and qualitative maintenance of each dhatu. Modern endocrinology attributes metabolic regulation to hormones that govern digestion, tissue regeneration, energy storage, reproduction, immunity, and stress response. Increasing prevalence of endocrinal disorders necessitates integrative frameworks to understand their root mechanisms. Ayurveda conceptualizes these

disorders as dhatu-level metabolic imbalances stemming from Dhatvagni dysfunction. This paper examines Dhatvagni dysfunction in relation to endocrine pathology and proposes correlations between classical Ayurvedic principles and modern endocrine science.

AIMS:

To explore the conceptual and clinical relevance of *Dhatvagni* dysfunction in the pathogenesis of major endocrine disorders.

OBJECTIVES:

To critically analyze the Ayurvedic concept of *Dhatvagni* dysfunction and its relevance in the etiopathogenesis of major endocrinal disorders, and to establish conceptual bridges between Ayurvedic tissue metabolism and modern endocrine physiology.

MATERIAL AND METHODS:

1. **Classical Textual Review :** Primary Ayurvedic texts were reviewed, including:
   - Charaka Samhita (Sutra, Nidana, Chikitsa, Sharira Sthana)
   - Sushruta Samhita[3]
   - Ashtanga Hridaya[2]
   - Commentaries such as Chakrapani, Dalhana, and Arunadatta
2. **Modern Scientific Literature :** Secondary literature on endocrinology, metabolism, and hormone physiology was reviewed through:
   - Textbooks of endocrinology
   - Peer-reviewed publications describing hormonal imbalances, metabolic pathways, and feedback mechanisms
3. **Conceptual Mapping :** Ayurvedic principles were correlated with modern endocrine mechanisms using an integrative, analytical approach to identify parallels between Dhatvagni activity and hormonal regulatory pathways.

OBSERVATION:

- In disorders of each *dhātu*, impairment in the functional efficiency of the corresponding endocrine gland was observed.
- In the state of *Dhatvagni-mandya*, a higher incidence of insulin resistance, hypothyroidism, and obesity was noted.
- In conditions of *Dhatvagni-viṣamatā*, an increased predisposition toward PCOS and metabolic syndrome was observed.

RESULT:

1. **Ayurvedic Understanding of Dhatvagni[4]**

   Ayurveda describes seven Dhatvagni—Rasāgni, Raktāgni, Māmsāgni, Medo'gni, Asthyagni, Majjāgni, and Śukrāgni—each responsible for:
   - Tissue formation
   - Cellular metabolism
   - Maintenance of structural and functional integrity
2. **Dhatvagni Vikruti Patterns[6]**
   - Manda Dhatvagni → hypo-metabolism, tissue undernourishment, accumulation of āma, impaired hormonal synthesis.
   - Tīkshna Dhatvagni → hyper-metabolism, tissue depletion, excessive catabolism, hormonal overactivity.
   - Vishama Dhatvagni → unstable metabolism, mirroring hormonal fluctuations.

3. Correlation with Modern Endocrine Functions

Dhatavagni Dysregulation	Hormone[8]	Impaired Functions
Rasagni	Insulin–Incretin Axis	glucose uptake and early changes in diabetes.
Raktagni	Thyroid Function	oxidative metabolism and parallels thyroid hormone dysfunction.

Mamsagni	Growth Hormone/IGF Axis	muscle anabolism defects and GH deficiency or excess.
Medoagni	Adipokines	obesity, leptin resistance, and metabolic syndrome[10].
Asthyagni	Parathyroid–Calcium Axis	altered calcium metabolism and bone turnover disorders.
Majjagni	Adrenal Cortical Hormones	cortisol dysregulation and chronic stress states
Shukragni	Reproductive Hormones	infertility, PCOS, menstrual irregularities, and androgen excess/deficiency

4. Dhatvagni as a Root in Endocrinal Disorders (Major Conditions Analyzed)[11]

Endocrinal disorder	**Dhatavgni Dysfunction**
Diabetes Mellitus (Prameha)[5] insulin resistance	Medoagni and Rasagni dysfunction Hormonal counterpart:
Hypothyroidism & Hyperthyroidism Altered basal metabolic rate	Raktagni and Rasa Dhatvagni vitiation
PCOS Hyperandrogenism correlates	Medoagni–Shukragni interplay with ama-mediated Kapha–Vata imbalance
Adrenal Dysfunction Chronic stress → HPA axis imbalance	Majjagni impairment
Obesity & Metabolic Syndrome Altered adipokine secretion → insulin resistance[7]	Profound Medoagni mandya

5. Therapeutic Implications for chikitsa

Vishesh Dhatu Chikitsa	*Vridhi-Kshaya Chikitsa*
	Dhatu Pradoshaj Roga Chikitsa Sutra
Samanya Dhatu Chikitsa	*Dipana-Pachana* for *Agni* enhancement
	Shodhana therapies (*Vamana, Virechana, Basti*)
	Rasayana therapy for *Dhatu* balance[9]
	Pathya–Apathya (*Agni*-aligned seasonal diet) & lifestyle modifications (Stress-management for HPA axis stabilization)

DISCUSSION:

Dhatvagni provides an indigenous metabolic model closely aligned with modern endocrine functions. While hormones regulate tissue growth, metabolism, and homeostasis, Ayurveda attributes these roles to Dhatvagni. Both systems identify:

- Feedback regulation
- Tissue-specific metabolic activity
- Systemic consequences of imbalance

Dhatvagni dysfunction precedes structural changes, similar to how hormonal imbalance precedes overt endocrine disease. This conceptual overlap suggests that Ayurveda's preventive and functional approach may offer early intervention strategies in endocrine disorders.

Ayurvedic therapy focuses on correcting the root—Agni dysfunction—rather than isolated symptoms. Integration of these frameworks

could enhance understanding and management of chronic endocrine diseases.

CONCLUSION:

Dhatvagni dysfunction represents a foundational Ayurvedic mechanism underlying endocrinal pathology. Mapping Dhatvagni with modern hormone physiology provides a robust integrative model that can enhance diagnostic clarity, preventive strategies, and therapeutic interventions. Future clinical studies should evaluate Dhatvagni-based treatment protocols in specific endocrine disorders to strengthen evidence-based integrative medicine.

Ethical committee permissions details: Not applicable (Conceptual study)

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