

A Systematic Review on Rakta Dhatu in Ayurveda

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Submission: 09.07.2024

Acceptance: 17.08.2024

Publication: 23.12.2024



Abstract

Rakta Dhatu plays a crucial role in Ayurveda, being responsible for maintaining life and nourishing tissues. This systematic review follows PRISMA guidelines to synthesize existing literature on Rakta Dhatu, its formation, characteristics, functions, and clinical significance. A comprehensive search of Ayurvedic classical texts, research articles, and seminar proceedings was conducted. Findings indicate that Rakta Dhatu, akin to blood in modern physiology, sustains life, enhances complexion, and supports bodily functions. Future studies should focus on clinical applications and comparative studies with modern hematology.

Keywords: Rakta Dhatu, Ayurveda, Hematology, Raktavaha Strotasa, Ranjaka Pitta, Panchakarma, Raktamokshana, Ayurvedic Medicine, Dosha, Dhatu

Introduction Ayurveda describes human physiology through the concepts of Dosha, Dhatu, and Mala. Among the seven Dhatus, Rakta is of primary importance, as it is responsible for life sustenance, nutrition, and complexion.⁽¹⁻³⁾ Classical texts, including Charaka Samhita and Sushruta Samhita, extensively describe its properties and functions. This review aims to systematically analyze literature on Rakta Dhatu and its significance.⁽⁴⁻⁷⁾

Methods A systematic literature review was conducted following PRISMA guidelines. The study selection process included:

- **Eligibility Criteria:** Studies discussing Rakta Dhatu from classical Ayurvedic texts and peer-reviewed research papers.
- **Information Sources:** Classical Ayurvedic texts (Charaka Samhita, Sushruta Samhita, Ashtanga Hridaya), research articles, and published seminar proceedings.
- **Search Strategy:** Keywords such as “Rakta Dhatu,” “Raktavaha Strotasa,” and “Ayurvedic hematology” were used to extract relevant studies.
- **Study Selection:** Literature was screened based on relevance, methodology, and completeness.
- **Data Extraction and Synthesis:** Key information was categorized based on formation, characteristics, functions, and clinical relevance.

Results

Study Selection

Out of 50 identified studies, 30 met the inclusion criteria. The selected literature was classified based on classical descriptions, physiological analogies, and clinical interpretations.

Characteristics of Rakta Dhatu

- **Formation:** Rakta originates from Rasa Dhatu through metabolic transformations mediated by Agni and Ranjaka Pitta in the Yakrit (liver) and Pleeha (spleen).
- **Physical Properties:** It is predominantly composed of Teja and Aap Mahabhutas, responsible for its liquid state and red color.
- **Functions:** Rakta Dhatu maintains Prana (life force), nourishes Mamsa Dhatu (muscle tissue), and imparts color to the body.

Clinical Significance

- **Deficiency (Rakta Kshaya):** Leads to pallor, fatigue, and dryness.
- **Excess (Rakta Vriddhi):** Manifests as skin disorders, hypertension, and bleeding disorders.
- **Therapeutic Measures:** Treatments include dietary modifications, herbal remedies (e.g., Manjishtha, Guduchi), and Panchakarma therapies like Raktamokshana.

Discussion Rakta Dhatu is integral to Ayurveda as it maintains vital physiological functions. In Ayurveda, Rakta is compared to blood in modern medicine but encompasses broader dimensions, including its role in Dosha equilibrium. The transformation of Rasa into Rakta highlights the importance of metabolic processes, particularly the role of Agni in digestion and conversion. The Ayurvedic description aligns with modern hematological concepts like erythropoiesis, which occurs in the bone marrow and involves hemoglobin synthesis.⁽⁸⁻¹²⁾

The importance of Rakta in health and disease is well emphasized in classical texts. Sushruta mentions Rakta as the fourth Dosha, signifying its crucial role in maintaining homeostasis. When vitiated, Rakta can lead to disorders like Raktapitta (hemorrhagic conditions), Pleeha Rogas (spleen disorders), and Vatarakta (gout). These conditions highlight the necessity of maintaining Rakta Dhatu's balance through diet, lifestyle, and therapeutic interventions⁽¹³⁻¹⁷⁾

From a clinical perspective, Rakta Kshaya (deficiency) and Rakta Vriddhi (excess) present distinct symptomatology. In Rakta Kshaya, symptoms such as anemia, pallor, and fatigue resemble iron deficiency anemia in modern medicine. On the other hand, Rakta Vriddhi is associated with hypertension, inflammation, and skin diseases, resembling polycythemia or hyperviscosity syndromes.⁽¹⁸⁻²⁰⁾

The formation of Rakta Dhatu is an intricate process involving multiple factors. Classical Ayurvedic literature emphasizes the role of Ranjaka Pitta in imparting the characteristic red color to Rakta. This can be compared to bilirubin metabolism, where heme breakdown results in pigment formation. Furthermore, Yakrit (liver) and Pleeha (spleen) are identified as sites for Rakta production, aligning with modern knowledge of erythropoiesis in the bone marrow.

Panchabhautika composition of Rakta Dhatu highlights its complexity. The predominance of Teja (fire) and Aap (water) elements explains its fluid nature and ability to transport heat and nutrients. This composition aligns with plasma and cellular components of blood, where the liquid portion facilitates circulation and the cellular elements perform oxygenation and immune functions.

Therapeutic approaches for Rakta-related disorders in Ayurveda focus on detoxification and regulation. Raktamokshana (bloodletting) is an established Panchakarma procedure used for conditions like skin diseases, hypertension, and inflammatory disorders. Modern parallels include phlebotomy for conditions like hemochromatosis and polycythemia. Herbal interventions such as Guduchi, Manjishtha, and Neem play a significant role in Rakta purification, acting as anti-inflammatory and detoxifying agents.

Ayurvedic dietary recommendations for Rakta health emphasize the consumption of iron-rich foods, bitter herbs, and cooling substances to balance Pitta Dosha. Modern nutritional science supports these recommendations, as iron-rich foods and antioxidants aid in maintaining hemoglobin levels and preventing oxidative stress.

Future research should explore the integration of Ayurvedic principles with contemporary hematological studies. Standardizing diagnostic criteria for Rakta disorders using

biochemical markers can enhance the credibility and applicability of Ayurvedic concepts in clinical practice. Comparative studies on Ayurvedic interventions versus conventional treatments for blood disorders can provide valuable insights.

Conclusion Rakta Dhatu is fundamental in Ayurvedic physiology and pathology. Understanding its properties, functions, and clinical implications enhances its application in modern healthcare. Integrating Ayurvedic principles with hematological research can pave the way for holistic treatment approaches. Future studies should focus on standardization and empirical validation of Rakta-related therapies to bridge the gap between traditional and modern medicine.

Source of Support: Nil

Conflict of Interest: Nil

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