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Kedari Kulya Nyaya: An Ayurvedic Interpretation of Tissue Nourishment and Cellular Transport

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Abstract

Ayurveda explains the nourishment and maintenance of bodily tissues (*DhatuPoshana*) through logical principles known as *Nyayas*. These principles provide conceptual clarity regarding metabolic transformation and transport of nutrients within the body. Among them, Kedari Kulya Nyaya explains tissue nourishment by comparing the body to agricultural fields irrigated through canals. According to this principle, nutrients are distributed sequentially and selectively to tissues based on proximity, requirement, and receptivity. Modern physiology explains tissue nourishment through transport of substances across the cell membrane by processes such as diffusion, facilitated diffusion, filtration, and osmosis. The present review aims to reinterpret Kedari Kulya Nyaya in the context of transmembrane transport of particles, thereby establishing a scientific correlation between classical Ayurvedic physiology and contemporary biomedical concepts. This integrative analysis highlights the rational and scientific foundation of Ayurvedic principles and reinforces their relevance in modern physiological understanding.

Keywords: Kedari Kulya Nyaya, DhatuPoshana, Cell membrane, Passive transport, Diffusion.

Introduction

In Ayurveda, food (*Ahara*) after digestion is divided into two components: *Sara Bhaga* and *Kitta Bhaga*. The waste portion (*Kitta Bhaga*) is eliminated from the body in the form of urine and feces, while the nutritive essence (*Sara Bhaga*), known as *Ahara Rasa* or *Annarasa*, nourishes the body tissues [1]. This nutrient-rich fraction contains vitamins, minerals, and essential elements required for tissue development and maintenance.

Physical and mental health depends upon the quality of food consumed, its metabolic transformation, and the mechanism by which nutrients are taken up by different cells [1]. In Ayurveda, this overall process of nourishment is explained through DhatuPoshana Nyaya. These Nyayas serve as logical frameworks that explain complex physiological phenomena using simple analogies.

The term *Nyaya* is widely used in Sanskrit literature to denote a rule, method, principle, analogy, or universally applicable maxim. Ayurveda Acharyas skillfully employed Nyayas to describe digestion, metabolism, and tissue nourishment. Among the various Nyayas described for DhatuPoshana, the most prominent are Ksheera Dadhi Nyaya, Khale Kapota Nyaya, and Kedari Kulya Nyaya [2].

Aims and Objectives

Aim

To reinterpret Kedari Kulya Nyaya in the light of transmembrane transport mechanisms described in modern physiology.

Objectives

1. To study the concept of DhatuPoshana Nyaya in Ayurveda
2. To understand Kedari Kulya Nyaya and its physiological implications
3. To correlate Kedari Kulya Nyaya with passive transport mechanisms across the cell membrane

Materials and Methods

This study is a conceptual and literary review based on classical Ayurvedic texts and standard modern physiology textbooks. Relevant references describing DhatuPoshana Nyaya, Kedari Kulya Nyaya, and membrane transport mechanisms were collected, analyzed, and critically interpreted to establish conceptual correlations.

Dhatu Poshana Nyaya in Ayurveda

Ayurveda recognizes seven Dhatus as *Shakti yukta Dravya*,

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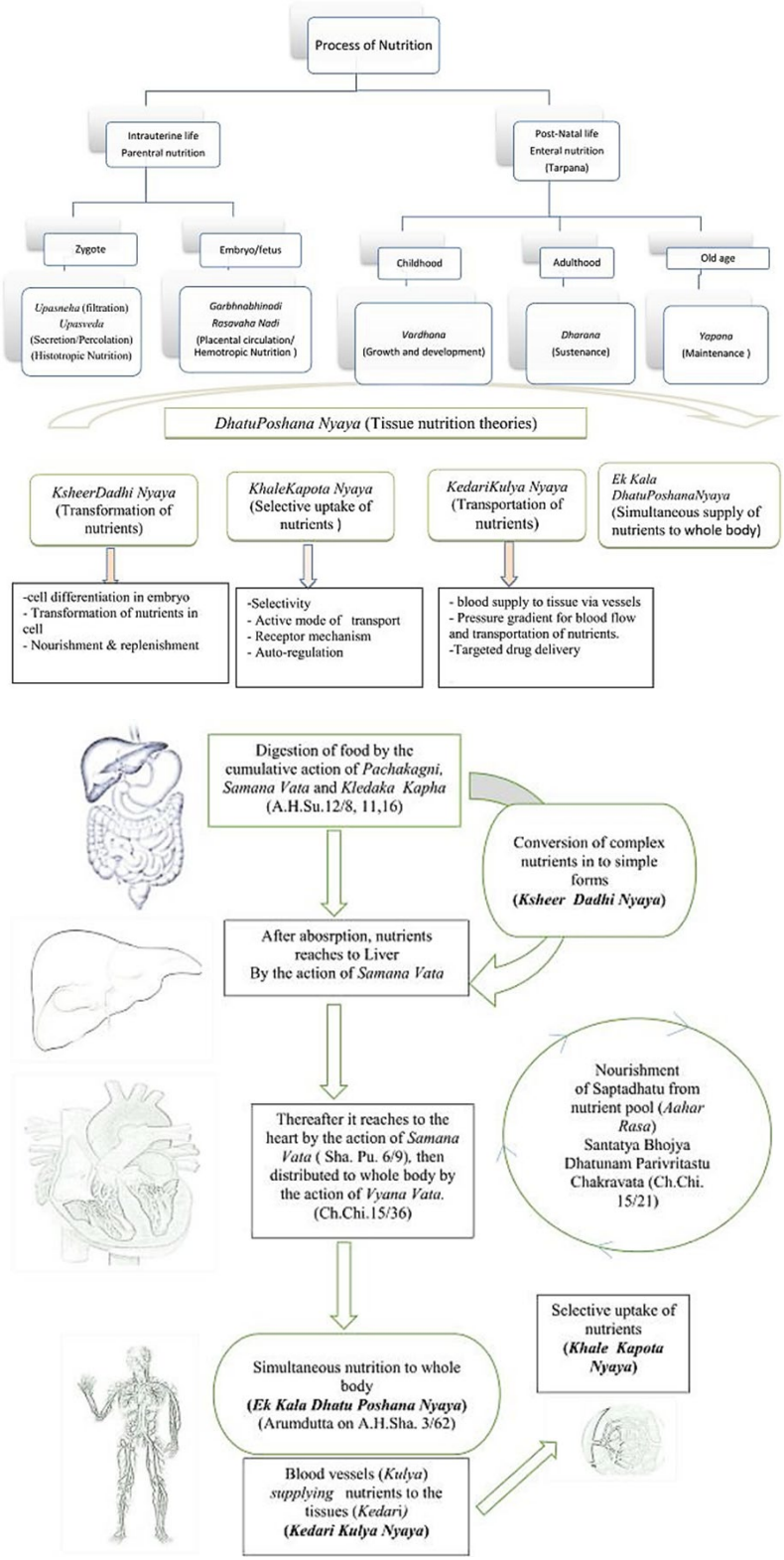
which perform functions of support (*Dharana*) and nourishment (*Poshana*). The nourishment of these Dhatus from Ahara Rasa occurs through specific physiological principles explained by DhatuPoshana Nyayas.

Ksheera Dadhi Nyaya: This Nyaya explains the sequential transformation of one Dhatu into another through the action of respective *Dhatvagni*. The transformation is compared to milk converting into curd, curd into butter, and butter into ghee [3]. This principle highlights biochemical transformation rather than transport.

Khale Kapota Nyaya: Khale Kapota Nyaya explains self-regulation of nutrient uptake based on tissue demand. It is compared to pigeons picking grains from a threshing floor according to individual need[3]. This Nyaya reflects demand-based nutrient selection.

Kedari Kulya Nyaya: *Kedari* refers to agricultural fields and *Kulya* to irrigation canals. Kedari Kulya Nyaya explains that Dhatus are nourished in a sequential manner, similar to fields being irrigated one after another through a common canal[3]. The field that requires more water absorbs more, just as a Dhatu absorbs nutrients according to its requirement [4].

Kedari Kulya Nyaya and Dhatu Nourishment



According to Chakrapani, Ahara after digestion first nourishes Rasa Dhatu. The remaining nutritive portion continues in circulation and sequentially nourishes Rakta, Mamsa, Meda, Asthi, Majja, and ShukraDhatus while passing through their respective sites [5, 3]. Each Dhatu selectively absorbs its own nutrients, and no Dhatu accepts nutrients meant for another Dhatu [7].

Sushruta explains that Annarasa stays in each Dhatu for a fixed duration, and complete formation of ShukraDhatu takes about one month in males and Artava in females [6]. This clearly establishes a time-bound, sequential nourishment process.

Correlation with Transmembrane Transport

Kedari Kulya Nyaya can be directly correlated with passive transport mechanisms across the cell membrane. Modern physiology explains that nutrients and gases move across the membrane along a concentration gradient without expenditure of energy [8, 9].

The lipid layer of the cell membrane allows diffusion of lipid-soluble substances like oxygen, carbon dioxide, alcohol, and steroid hormones [11]. Water-soluble substances and electrolytes pass through protein channels, while glucose and amino acids are transported by facilitated diffusion [9].

Filtration occurs due to hydrostatic pressure differences, as seen at the arterial end of capillaries and in renal glomeruli[16]. Osmosis allows movement of water across a semipermeable membrane from lower to higher solute concentration [9].

All these processes reflect the same principle described in Kedari Kulya Nyaya—passive, selective, and gradient-dependent transport.

Discussion

Kedari Kulya Nyaya explains that each Dhatu receives nourishment from Ahara Rasa according to its own need and receptivity [7]. This is analogous to selective permeability of the cell membrane. The movement of nutrients through Srotas can be compared to movement of substances through lipid and protein layers of the membrane.

The pressure gradient described in Kedari Kulya Nyaya resembles hydrostatic pressure-driven filtration in physiology [11]. The reduction in blood flow velocity from aorta to capillaries further supports this concept [8].

Thus, Kedari Kulya Nyaya provides a macro-level explanation, while modern physiology explains the same phenomenon at micro- and cellular levels.

Conclusion

The classical Ayurvedic principle of Kedari Kulya Nyaya closely corresponds to modern concepts of passive transmembrane transport, including diffusion, facilitated diffusion, filtration, and osmosis. The Acharyas had a profound understanding of nutrient transport and tissue nourishment, which they expressed through logical analogies. Even today, these principles remain scientifically valid and relevant. The integration of Kedari Kulya Nyaya with modern physiology strengthens the scientific foundation of Ayurveda and highlights its timeless relevance.

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