Physiological Study Of Rasa Dhatu In The Context Of Present Era

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Abstract

According to Ayurveda, Living body is continuously subjected to wear and tear process. Dhatus which are being lost in physiological activities are replenished by food and water. The word rasa dhatu literally means the component of the body with nutrients and essence. There are two forms of rasa related to body physiology. Man needs to eat food to build a new Dhatu and to repair damage Dhatus. After consumption food is digested in gastro intestinal tract. Fluid formed from the digested part of food is called as Ahara Rasa. For growth, Dhatu needs nourishment, and these Dhatus are nourished by food and water. Aahar Rasa is formed in Annavaha Srotas. Aahar Rasa contains nutrients of seven Dhatus. Aahar Rasa is absorbed from Grahani (small intestine) and brought into heart. Heart is a root of Rasavaha Srotas, hence in heart, Rasa Dhatvagni transforms nutrients of Ahara Rasa into stable Rasa Dhatu. Rasa Dhatu is formed in Rasavaha Srotas. Rasa is the first Dhatu formed from Aahar-Rasa.

Key words: Rasavaha Srotas, Rasa, Dhatu.

Introduction

Rasa word derived from the ‘Sanskrit’ Ras having the meaning of table, to relish, to desire. Rasa dhatu means juice or liquid of life. Rasa is derived from the rasa gatau which means moving. Rasa dhatu is more nourishment than fluid, is carrying hormones, nutrients & proteins. As the nutrients fluid is continuously circulated is our body it is called as Rasa. The quality of Rasa dhatu depends on the health of digestion i.e. Agni Rasa is produced by the digestion of food & liquids. We call Ras a Adyadhatu as it is first dhatu in our body. Prasada & Sara are the synonyms of Rasa in the context of ahara Rasa.
Definition

*Rasa dhatu* literally translates to "the part of the body with essence and nutrients." In relation to body physiology, *rasa* comes in two varieties. After the initial stage of digestion by the stomach's metabolic and digestive processes (*jatharagni*), food becomes its essence, or *ahara rasa*. The *rasa dhatu* is the second form. It is the element that arises when *rasa dhatvagni* acts upon the *ahara rasa*.

Derivation and etymology

The word ‘*rasa*’ is derived from the Sanskrit root “ras” having the meaning of taste, to relish, to perceive, to feel, to desire.

*Rasa* is derived from the root ‘gatau’ which means moving. As the nutrient fluid is continuously circulated in our body, it is known as *rasa*.[1]

Synonyms

Adyadhatu(first *dhatu*)[2]

• *Ahara parinama dhatu*(transformed from food)

• *Prasada* and *Sara* are the synonyms of *rasa* in the context of *ahara rasa*.

Material and Methods

This study is based on a review of data collected from classical text and various modern books, magazines, articles and research papers from various journals and various websites. The information available on the internet is also incorporated into the study.

Physiological Aspect of *Rasa Dhatu*

Formation, circulation and metabolism of *rasa dhatu*

*Rasa dhatu* is formed from essence of food(*ahara rasa*). The ingested food is disintegrated into two parts: essence or useful part (*prasada*) and waste (*kitta*). The *prasada* is called as essence of food (*ahara rasa*). This essence is transformed into a nutrient fluid called ‘*rasa dhatu’*. [3]

It is the ultrafine form of *ahara rasa*.

*Rasa Dhatvagni* acts upon the *rasa dhatu* in addition. It is split into two halves. The first part takes on a permanent form (*sthayi rasa dhatu*) to perform physiological functions such as body maintenance and nourishment.

The second portion called ‘poshaka rasa’ is carried forward to nourish the next *dhatu* i.e.rakta.[4]

During the metabolic process, this *rasa* is transformed into rakta *dhatu* by action of ranjaka pitta. It acquires a red colour during this process. This metabolism takes place at yakrit (liver) and pliha(spleen).[5]

Panchbahutic Composition of *Rasa Dhatu*

- **Apya Mahabuta :-** Body fluid 60% contain Na+, Ci-, K+, H+ ion
  - *Sneha* – Liquids, Phospholipids Cholesterol etc.
- **Prithvi Mahabuta :-** Protein Serum albumin, Globulin, fibrinogen, etc.
  - Glucose, glycogen, Nitrogenous, credtine, urea, uric acid etc.
- **Agneya Element :** Vitamin A, D, E, K, B Complex Niacin
Enzyme- Amylolytic, Lipolytic, Proteolytic etc
Elements- Sodium, Potassium, Magnesium, Calcium, Iron etc. All endocrine Secretion

- Vayavya Element :- Gases, oxygen, carbon dioxide etc

**Metabolic by products and waste products (Upadhatu and mala)**

Breast milk (Stanya) and menstrual blood including ovum (artava) are formed as metabolic byproducts (upadhatu) of rasa dhatu.[6] Sharangadhara considers only breast milk (stanya) formed as upadhatu.

Various secretions and discharges are formed in this process as ‘kapha’. This is termed as "malarupakapha".

**Quantity of rasa dhatu in body**

The total quantity of rasa is nine anjali. One anjali is equal to the quantity that can be filled in a space formed from joining one’s palms together. This measurement is person-specific.[7]

**Time span**

The rasa dhatu is formed in a time span of 3015 kala (five days).[8]

**Circulation of rasa dhatu**

The rasa dhatu is circulated through twenty-four vessels (dhamani) originating in the cardiac region. The upper and lower part of the body is nourished by ten vessels each. The remaining four nourish lateral parts of the body.[9]

All the twenty-four vessels are described in a separate chapter named ‘dhamanivyakarana sharira’ Vyanavayu carries out the circulation of rasa dhatu.[10]

**Rasavahi/ Rasaharini**

The heart of the fetus is linked to the mother’s heart through the channels carrying nutrients (rasavahi). The fetus expresses its wishes to the mother through these channels.[11] During the eighth month of gestation, the vital essence (ojas) is unstable. It moves from mother to fetus and from fetus to mother through these channels.

**Rasavaha srotas**

The system that transports rasa throughout the body is known as Rasavaha Srotas. It circulates rasa through ten vessels after emerging from the heart.[12] Pranavaha srotas are made up of the same channels and organs. This indicates that the body's vital force, or prana, is also carried by the heart and the rasa-transporting channels.

**Role of rasa dhatu in embryogenesis:**

During embryonic life, rasa dhatu is the only source of nutrition. The heart of the fetus is connected with the mother through the placenta and umbilical cord. The fetus gets nutrient fluid (rasa dhatu) through this placental circulation. Growth and development depend upon nutrition provided by rasa dhatu. This promotes strength and complexion of the fetus as it is composed of materials having all six tastes. This rasa also nourishes the mother’s body and carries out lactation.[13]

Together with maternal and paternal factors, rasa is one of the fetus's six origins. It is in charge of the development and growth of bodily parts, as well as the maintenance of life, satiety, nourishment, and zeal during embryogenesis.
Causes of vitiation

Excess consumption of heavy to digest, cold, over-unctuous food, overeating and excessive mental stress cause vitiation of rasavaha srotas.[14]

Abnormal states

The increase or decrease in quality and/or quantity of rasa dhatu can lead to various abnormal conditions. The states can be assessed by following clinical features.

<table>
<thead>
<tr>
<th>Symptoms of Rasa Dhatu kshaya[^15,16,17]</th>
<th>Symptoms of Rasa Dhatu vriddhi[^18,19]</th>
</tr>
</thead>
<tbody>
<tr>
<td>Degeneration of other &quot;dhatu&quot;(Dhatu ksheenata)</td>
<td>Decrease digestive power(Agnimandya)</td>
</tr>
<tr>
<td>Dryness of mouth(Mukhashosha)</td>
<td>Nausea(Utklesha)</td>
</tr>
<tr>
<td>Dryness of body mass (Sharirashosha)</td>
<td>Salivation (Praseka)</td>
</tr>
<tr>
<td>Emaciation (Karshya)</td>
<td>vomiting(Chchardi)</td>
</tr>
<tr>
<td>Thirst(Trishna)</td>
<td>Lack of enthusiasm to do work (Alasya)</td>
</tr>
<tr>
<td>Feeling of emptiness(Shunyata)</td>
<td>Heaviness in body (Gaurava)</td>
</tr>
<tr>
<td>Tiredness(Shrama)</td>
<td>Whitish discoloration of body(Shvaitya)</td>
</tr>
<tr>
<td>Intolerance to sound(Shabdaasahishnuta)</td>
<td>Feeling abnormal coldness of body(Shaitya)</td>
</tr>
<tr>
<td>Pain in the heart (Hrudayaghattana)</td>
<td>Looseness in body parts(Angashaithila)</td>
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<tr>
<td>Trembling sensation of heart or tachycardia(Hrutkampa)</td>
<td>Dyspnoea(Shwasa)</td>
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<tr>
<td>Palpitation(Hrutdrava)</td>
<td>Cough(Kasa)</td>
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<tr>
<td>Cardiac pain(Hrutshola)</td>
<td>Excessive sleep (Atinidrata)</td>
</tr>
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<td>Fatigue or tiredness (Shrama)</td>
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DISCUSSION AND CONCLUSION:

The necessity of food for the body’s growth and operation is acknowledged by both sciences. The last by product of food that Agni in Pachak Pitta has digested is called Aahar Rasa. The result of digestion via Annavaha Srotas is Aahar-Rasa. After the initial stage of digestion by the stomach’s metabolic and digestive processes (jatharagni), food becomes its essence, or ahara rasa. The rasa dhatu is the second form. It is the component formed after the ahara rasa gets acted upon by rasa dhatvagni. Aahar-Rasa is absorbed from Grahani into Rasa-Rakta. Absorbed Ahara-Rasa is carried to heart and then it is circulated in body. Agni of every Dhatu transform nutrient of respective Dhatu into stable Dhatu. Every Dhatu identifies its own nutrient and binds with it, so that Dhatwagnic transform it into stable Dhatu. Rasa-Dhatu is a first generation of Aahar Rasa and is produced by digestion of Ahara-Rasa in Rasavaha Srotas by Rasa-Agni. Hence Rasa Dhatu is product of digestion through two Srotamsi, Annavaha Srotas and Rasavaha Srotas.

References:


19. Ashtanga Hridaya, with Vidyotini Hindi commentary of Kaviraj Atrideva Gupta Sutra Sthana, Chapter 11/7-8, Chaukambha Prakashan, Varanasi.