

Concept of Dhatu Poshan Vs Metabolism- A Review

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Abstract

Ayurveda known to be the holistic science or the oldest Holistic Healing System, has been practiced in India for at least 5000 years. It maintains balance between mind, body and soul. Aim of Ayurveda is not just to heal a diseased person by medicine or surgery, but also to maintain the health of a healthy person by advising daily routines and seasonal instructions. Through their insight perception, Ayurvedic Acharyas had recognized and explained a lot of scientific knowledge about the physiological-processes of our body, of which, Dhatu - poshan process is one of the main concepts of metabolic processes of our body. Different acharyas had given different theories to explain the formation of seven dhatus (tissues) in our body. This review enlightens the Scientific approach of the Ayurvedic Context "DhatuPoshan Nyay" or the Theories of nourishment of Tissues in our body.

Key words

Dhatu, Annaras, uttrottara, upadhatu, vijatiya

Introduction

Dhatu-Poshan Nyay are the theories described in ancient Texts to explain the formation and nourishment of different dhatus (tissues) in our body.[1] Seven types of Dhatus have been explained in Ayurveda. Their balance is required for the healthy State of body, which could be maintained by the proper drive of these metabolic processes. In general, all these 7 dhatus are produced and nourished from the digested part (annaras) of food. Rasa dhatu (Plasma, lymph, other body fluids etc.) is formed from annaras, which further leads to formation of Rakta dhatu (Blood). Rakta dhatu nourishes mamsa dhatu (muscular tissue) which helps in formation of meda dhatu (adipose tissue). Meda dhatu is responsible for the formation of Asthidhatu (Bones & Connective tissue) which nourishes majja (bone marrow). Majja dhatu sequentially nourishes the last but not the least Shukra dhatu (Reproductive tissue). In this way, all the tissues get nourishment from annaras generally. But specific theories have been described by different scholars to justify these processes of formation and nourishment of these 7 dhatus as eg – 1 Ksheer Dadhi Nyay

2. Kedari Kulya Nyay

3. Khale Kapot Nyay

Ashtang Hridya Teekakar Arundutta has mentioned one more paksha (chaturtha nyay) called ek kaal dhatu poshan krama, which seems to be the reformed version of Kedari Kulya Nyay

1. Ksheer Dadhi Nyay (Law of Transformation) As milk is completely converted into curd, similarly annaras converts to Rasa dhatu. Rasa dhatu then transforms to Rakta dhatu and so on (as mentioned above) These changes are similar to conversion of milk to curd, curd to navneet (butter), & navneet to Ghee.

This nyay is also called Krama-Parinam Paksha & Sarvatma-Parinam Paksha. This law suggests that sequential order only is responsible for making uttrottara dhatu (next dhatu).

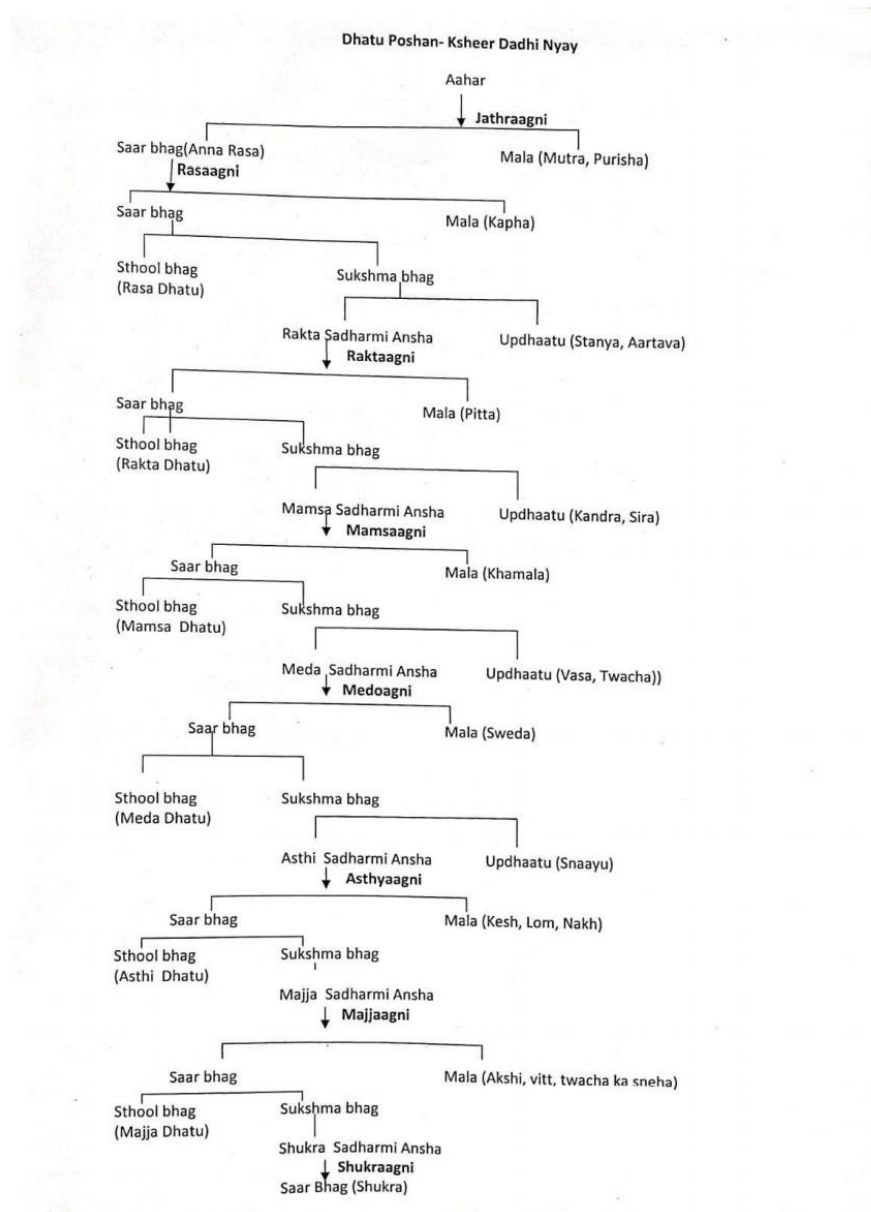
There lies a doubt that the complete conversion of previous dhatu to next dhatu may lead to cessation of previous dhatu but it doesn't happen usually because we used to ingest food daily at our meal times. So, annaras is formed at desired intervals and converted to different dhatus sequentially [2]

Teekakaar Chatrapani didn't accept this theory due to some objections like

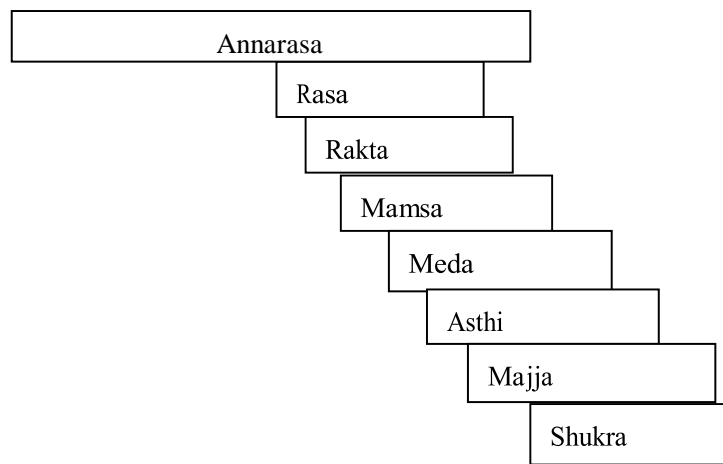
- 6 days fasting may lead to presence of shukra dhatu
- abnormality in previous dhatu may lead to abnormality in next dhatu also

- Increase or decrease in previous dhatu may lead to increase or decrease in next dhatu also. But usually, these conditions are not seen in our body.

These objections are further ruled out by Sushruta Teekakar Dalhana who gave the well explained theory of Ksheer dadhi Nyay and said that essence of annaras's major part transforms to Rasa- dhatu and its minor part converts to next dhatu & upadhatu of Rasa dhatu as described in the given table. In this way, the previous dhatu also remains in the body along with the formation of next dhatu [3]

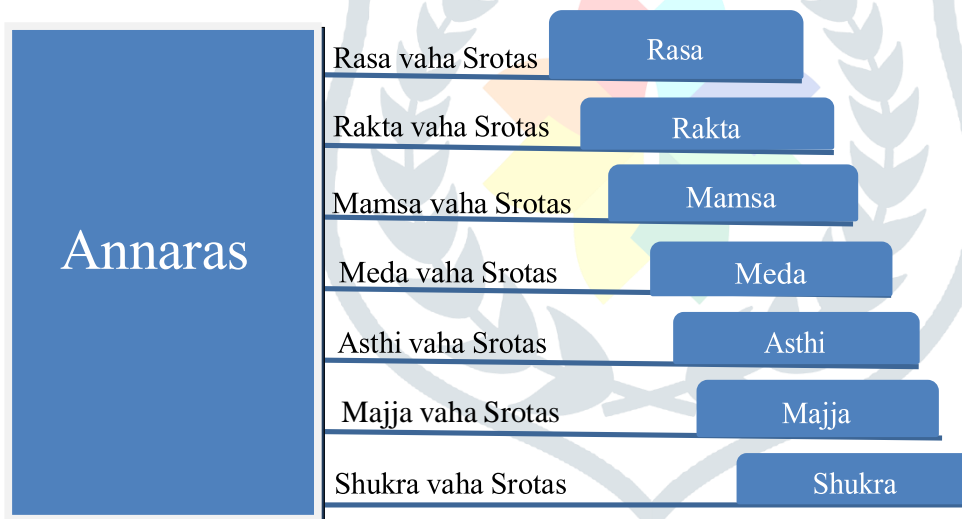


2. Kedari-Kulya- Nyay (Law of Transportation) – As the small crop fields (Kedari) get irrigated through water canals (Kulya) and get nourishment, similarly different dhatus get nourishment from the main canal of annaras. The nearer the Kedari to the main Kulya, the faster will it get the nourishment. The water reaches to the first part of the field and then to the next part by concentration gradient (over-flow of first kedari or field leads to irrigation of the next one by gravitational strength naturally). Similarly, the nearer the dhatu to the annaras, the earlier it will get nourishment. So, theoretically Rasa dhatu gets the nourishment earlier than the rakta dhatu & so on. This law depends upon the distance of the dhatu from the annaras.



According to this law, all dhatus get their nourishment from the annaras and not from the previous dhatu. Annaras has all the nutrients required to different tissues. Chakrapani accepts this laws. [4]

3. Khale- Kapota Nyay (law of Selection) - As the birds (kapota) pick up the grains they need from the fields (Khale- where these grains are piled up for feeding these birds), similarly Dhatuvaha Srotas take the nutrients required for the nourishment of their dhatus from the main source of nutrients ie. annaras. This law depends upon the length of the dhatuvaha srotas. The longer the dhatuvaha srotas, the late is its nourishment. As the bird, if have its nest far away from the grain source, the late will its family gets nourishment. Dhatuvaha Srotas-takes selective nutrients from the annaras which is required to its dhatu. [5]



EK-Kaal Dhatu Poshan Nyay – (Law of Simultaneous Nourishment) - This law is the reformed version of Kedari-Kulya-Nyay (in which the farthest field gets the nourishment at last from the same source of water) Kedari-Kulya-Nyay if can be explained in a way that the main source irrigates each field one at a time, then Ek-kaal- dhatu-poshan Nyay gets its justification. EK Kaal dhatu-poshan Nyay is explained by Arundatta (Ashtang-Hridya's Commentator). According to this theory, all the dhatus get nourishment at the same time from annaras as a tubewell irrigates the whole field at the same time, may it be closer or farther from the tube well. This can be explained accordingly. Digested food gets absorbed into the capillaries near the intestines and the nutrients go into the circulation, from where all the tissues get their nourishment simultaneously. This theory is the reformed version of 2nd theory, So is not to be enlisted as separate one. [6]

Discussion

Scientific Analysis of Different Theories.

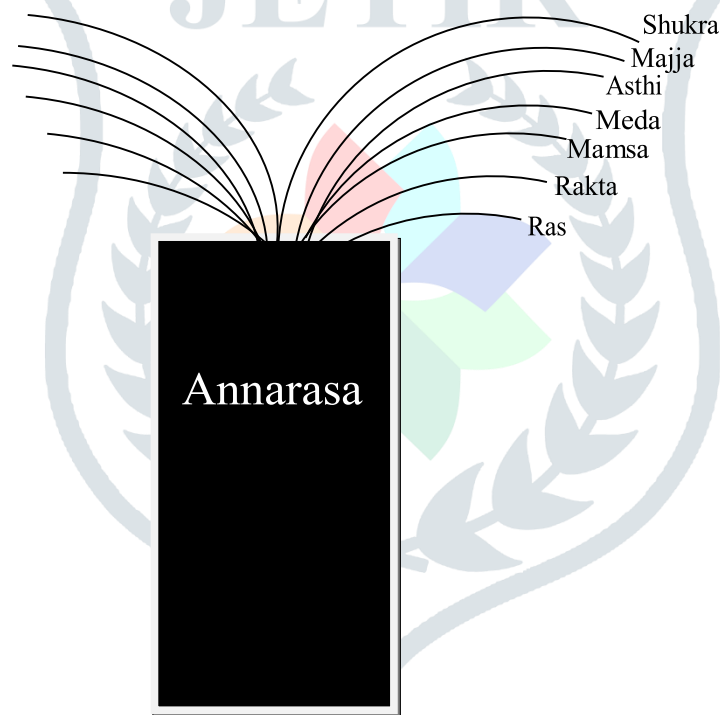
Ksheer Dhadhi Nyay applies to the transformation of Complex (vijatiya) food into simple components eg glucose, amino-acids, fatty acids, glycerol during the process of digestion. Different biochemical transformational processes like glycolysis, Kreb's cycle, gluconeogenesis etc. supports this nyay.

Kedari Kulya Nyay applies simultaneously; as the end products of digestion are carried through annaras, absorbed by capillaries and circulate in the body from tissue to tissue.

Passive diffusion along the direction of Concentration gradient is seen in the transportation of substances. through call membrane. This correlates with the concept of Keduri-Kulya-Nyay [7]

Khale-Kapota-Nyay applies along with these all, as at the same time, the main tissue selects only those nutrients from the circulation which are absolutely necessary for them, may it be against the concentration-gradient by active process as the bird takes its nourishment actively with the energy required for that. So, it can be correlated with the active transport of substances to the tissues. [8]

EK-Kaal-Dhatu-Poshan Nyay is commendable and is the most appropriate theory because simultaneous and miraculous nourishment of all the tissues at a time, through blood circulation is scientifically approved. It is seen that food after digestion is absorbed through small intestine and then this capillary blood goes to liver for metabolism and to heart, from where the blood is circulated all over the body and tissues get their nourishment



Conclusion

From the above review, it has been concluded that all the theories of Dhatu-Poshan are scientific and have their significance. Different metabolic processes are driven in our body which were judged by ancient acharyas so many years ago. Though 3 main theories have been enlisted by our acharyas, the fourth concept of EK-Kaal-Dhatu-Poshan Nyay is the most appropriate one and is included in the second theory namely Kedari- Kulya Nyay. Ek-Kaal-Dhatu-Poshan Nyay or the law of simultaneous nourishment states that all the tissues get their nourishment at the same time by all the three processes may it be Ksheer Dadhi Nyay (Glycolysis, Kreb's Cycle etc), Kedari-Kulya Nyay (Passive transport of substances through cell membrane) or Khale-Kapota Nyay (Active transport of substances through cell membrane).

So, it can be concluded that the classical concept of Dhatu-Poshan-Nyay corresponds to the different physiological processes of food metabolism

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