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CONCEPT OF SAMANA VAYU IN AYURVED W.S.R. TO ENTERIC NERVOUS SYSTEM

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ABSTRACT

Ayurved stands on its own basic pillar and concept regarding *Dosha* of one of them. *Dosha* are responsible for physiological action in the body. According to *Ayurved*, *Dosha* have been considered as responsible factors for physiological actions inside of the body. *Vata Dosha* is the most important factor of *Tridosha* which is responsible for all movement and it is the initiating and controlling factor. Among five *Vata Dosha*, *Samana Vayu* is situated near Agni. It moves about all through digestive tract. *Ayurved* has described an important factor of digestion and metabolism in our body as *Agni* and this *Agni* stimulated by *Samana Vayu*. *Agni* finally digests the food. After the food reaches stomach, several digestive juice acts on it. Gastric juice, pancreatic juice, all contains important digestive enzymes and act on food. Secretion of this enzyme is mostly under the control of intrinsic and extrinsic enteric nervous system.

KEYWORD: *Vata Dosha*, *Agni*, *Samana Vayu*, enteric nervous system.

INTRODUCTION

Samana Vayu is one of the types of *Vata Dosha* which is due to its location in the middle or centre of the body can easily maintain the state of equilibrium inside the whole body. Middle part of body or abdomen is the chief site for digestive process because it is the place where the chief of Agni (*Antragni*) is located and perform its action. *Saman Vayu* stimulate the *Agni (Antragni)* to perform its catabolic action on the food, *Samana Vayu* also helps in initiation of food, stimulation of digestive secretion, absorption of essence part, gastrointestinal motility instigation of elimination of waste product through *Srotas*. *Samana Vayu* described by *Acharya* can be compared with the physiological function of sympathetic nerve and

parasympathetic which control the movement and secretion of GI tract. Peristaltic movement of GI tract controlled by Auerbach's plexus and regulation of secretary function and cause constriction of blood vessels of GI tract controlled by meissner plexus part of intrinsic and extrinsic nerve supply can be compared with the function of *Samana Vayu*.

DISCUSSION

All the movements are due to *Vata* and that is why it is called the *Prana* of all living beings. In general the function ascribed to *Vata* are control and coordination of different part of the body initiation of all movement regulation of psychological processes, initiation of all activities of sense organ, transmission of different sensation , production of speech, secretory-motar function in the gut, expulsion of waste from the body and control of respiration. *Vata* is divided into five sub types –*Prana, Udana, Samana, Vyana* and *Apana*.

Samana Vayu

The term *Samana* means *'Samanthad kosthe samyak saman vaa aniti, iti samanah'*, which prevalent all around or which equalizes into one whatever we eat. Active site of *Samana Vayu* is adjacent to gastrointestinal tract. It performs the function like reception of food, it digestion through the activation of *Agni* its division into useful and waste parts and it's onwards propulsion. All these function are either those of parasympathetic nerves supplying the gut or those of enteric nervous system.

Site of Samana Vayu By Different Acharya.

S.n.	***Acharya***	***Sthana***
1	*Charak samhita*	Pervading the *Swedavaha Srotas, Doshvaha Srotas* and *Ambuvaha Srotas* is located in the neighborhood of *Antarangi (jatharangi*)
2	*Susruta samhita*	Located near to *Agni*, moves in the *Ama-Pakwashaya*
3	*Astanga hridaya*	Located near to *Agni*, moves in the *kostha*
4	*Astanga samgraha*	Present near the *Antaragni,*

Function of Samana Vayu By Different Acharya.

S.n.	***Acharya***	***Karma***
1	*Charak samhita*	It promotes the power of *Agni*.
2	*Susruta samhita*	• It digests the food • And separates its product (essence and waste of food after digestion)
3	*Astanga hridaya*	• Keeps the ingested food particle for digestion • After digestion discriminates or separates it as the essence and wastes • Eliminates the waste product through the *Gudamarga* and *Medhramarga*
4	*Astanga*	• Retaining of food

	samgraha	• Digestion • Separation of essence and waste • Moving in the waste product downwards

Enteric Nervous System

The Cambridge (of England) based professor of anatomy, James Langley, who also discovered the ANS as well as the receptors, discovered the enteric nervous system. Langley called the enteric nervous system, semiautonomous system but nowadays many physiologists view the enteric nervous system as part of the autonomic nervous system. The enteric nervous system is found in gastro intestinal tract, lies in the wall of gut beginning from the esophagus to anus. The number of neurons in this enteric nervous system is especially important in controlling gastrointestinal movement and secretion. Enteric nervous system has two types of nerve supply:

(1) Intrinsic nerve supply-Intrinsic nerve to GI tract forms the enteric nerve system that controls all the secretion and movement of GI tract nerve fibers of this system are interconnected and form two major networked called:

(a) Aurebach's plexus- Auerbach's plexus is also known as myenteric nerve fibers. Auerbach's plexus is an outer plexus present in between outer longitudinal and inner circular muscle of small intestine.

Function- It helps in controlling of gastrointestinal movement.

- Accelerate the movement by secreting neurotransmitters-

a) Acetylcholine- Activates smooth muscles in gastrointestinal tract, urinary tract, skeletal muscles. Increase gastric and pancreatic secretion.

b) Serotonin-Smooth muscle contraction, it also control food intake.

c) Substance P (presence of chime)- In gastrointestinal tract, it increases the mixing and propulsive movement of small intestine

- Inhibit the movement by secreting neurotransmitters-

a) Vasoactive intestinal polypeptide (presence of acid chime) – Inhibit HCL secretion in gastric juice and relaxes smooth muscles of intestine.

b) Enkephalins- Decrease intestinal secretion.

c) Neurotensine –Relaxation of smooth muscles, decrease intestinal secretion.

(b) Meissner plexus- Meissner plexus is otherwise called sub mucus nerve plexus. Meissner plexus is present in the mucosal layer and sub mucosal layer of small intestine.

Function – It helps in controlling of gastrointestinal secretion and local blood flow. These nerve fibers cause constriction of blood vessels of gastrointestinal tract.

Both the plexuses are interconnected and are under the extrinsic autonomic nerves control by both parasympathetic and sympathetic nerve fibers.

(1) Extrinsic system- The extrinsic sympathetic and parasympathetic fibers of autonomic nervous system connect to myentric and submucosal plexus. Although enteric nervous system can function independently, stimulation of the system enhances or inhibits the gastrointestinal function respectively.

Sympathetic Nerve Fibers

The sympathetic fibers of gastrointestinal tract originate in the spinal cord between T_5 to T_{11} segment. Sympathetic preganglionic fibers leaves the spinal cord the enter into the sympathetic chain some preganglionic nerve fiber pass on without synapse through the chain to pre vertebral ganglia such as celiac ganglia and mesenteric ganglia then postganglionic nerve supply to all the parts of the gut.

Function

- Inhibit the movement of gastrointestinal tract.
- It also causes constriction of sphincter.
- Decrease the secretion of gastrointestinal tract by secreting the neurotransmitter noradrenaline.

Parasympathetic Nerve Fibers

Parasympathetic nerve fiber to GI tract passes through some of the cranial nerve and sacral nerve. The preganglionic and postganglionic parasympathetic nerve fibers to mouth and salivary gland pass through facial and glosspharyngeal nerves. Preganglionic parasympathetic nerve fibers to esophagus, stomach, small intestine and upper part of large intestine pass through vagus nerve. Preganglionic nerve fibers to lower part of large intestine arise from second, third, and fourth sacral segments of spinal cord and pass through pelvic nerve.

Function- Parasympathetic nerve fibers accelerate the movement and increase the secretion of GI tract. The neurotransmitters secreted by the parasympathetic nerve fibers are acetylcholine.

CONCLUSION

Samana Vayu is chiefly locates in the middle part of body. Function of *Samana Vayu* varies by different *Acharya*. It is primarily responsible for stimulation of *Agni* and leads to digestion, absorption, separation of essence and waste material. Function of *Samana Vayu*, described by *Acharya* can be compared with the physiological function of enteric nervous system. It can be partially correlated with enteric nervous system, sympathetic and parasympathetic supply of auto nervous system.

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