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AYURVEDIC

Review article

Concept of Srotas from Ayurvedic Perspective with Special Reference to Neurology

[1]Amit Swarnakar, [2]Jyotirmay Choudhury, [3]T.Borah, [4]D.Baruah,[5]B.K.Bharali.
[1] SRF (Ayurveda), [2] Senior Consultant, [3]RO (S-4)Ayu, [4]RO (S-3) Ayu, [5]AD (S-4) Incharge
North eastern India Ayurveda research Institute, Bletola, Guwahati, Assam, India.

ABSTRACT
Ayurveda is a life science. The researchers of ayurveda could rule out the presence of srotas (channels) spreading throughout the human body. These srotas (channels) are governed by vayu which is using all the srotas (channels) of the body to carry out the functional and physiological activities of the human body without which the human society will not exist. Several synonymous words have been described by the ayurvedicacharyas for srotas. Some are micro and some are macro in structures and they adopt the same colour of the particular dhatus of the body to which it belongs. The aim of the study is to justify that srotas are nothing but innumerable channels or pathways of the nervous system governed by electric current without which no functional and physiological activities of the human body will develope.
Key words: Srotas (channels), Vayu, Pathways, Mana (human mind).

INTRODUCTION

The human body is a house of miracles. It is made up of sophisticated electrical wires flooded throughout the human body. Even a small single hair of the body is dependent on these electrical wires that are electrical signals. Speaking, looking, smelling, hearing, walking, reading, writing, eating, discharge of fecal matters, happiness, sorrow, enthusiasm, sleeping are all dependent on these electrical signals of the human body. Research is going throughout the world to understand the physiology behind this phenomenon. Some questions could have been established but some still remain mystery. So, from the above said phenomenon it is now clear that we are dealing with a very high sophisticated machine that the present human being may even dare to think of it.

Ayurvedic review

Ayurveda is a life science and according to it the human body is made up of three types of dosas namely vayu, pitta and kapha and they follow routes to perform their activities. Different acharyas of Ayurveda has given their own views regarding the functional aspects of vata, pitta and kapha. Ayurveda has accepted that the human body to be made up of innumerable channels which are responsible for performing all the physiological and functional activities. Without these channels human life will not exist. All the three dosas of the body perform their functional activities with the help of these channels.For the proper development of the human body the proper functioning of these signals are very necessary. Because of these signals there is development of cells to tissues, tissues to organs and organs to systems. After that a well developed human body is formed. This type of signaling continues throughout the life of a human being and stops when the person attains death.

The age of Ayurveda is about 5000 years old. In those periods the researchers of Ayurveda could rule out the presence of nervous system which is controlling each and every functional and physiological activities of the human body. The nervous system which is scattered to every nook and corner of the human body has been designated

*** Corresponding author: Amit Swarnakar.**
E-mail address: dramit.swarnakar@gmail.com

by Ayurvedic acharyasas srotas or channels. [1]According to charaka in a human body formation of every chemical and their movements, discharge of unwanted products from the body, feeling of hot, cold, dry, rough, heavy etc as well as the functional activities of the sense organs in other words increase and decrease in functional activities occurs with help of srotas. [2]Chakrapani, one of the commentators of Charaka Samhita has put forwarded a maxim called "Santan Nyay". According to this maxim the life is nitya(*constant*) and the atman is also nitya(*constant*). Since the life is nitya(constant) therefore formation of every substances producing inside the body as well as their movements are also nitya(constant). Increase and decrease of the substances occurs depending on the dietary intact, therefore they are also nitya(*constant*). Even though the life of a person comes to an end but it is not possible that the whole world become lifeless.Therefore due to santan nyay between life and buddhi or knowledge the flow of atman is also nitya(*constant*). From the above said phenomenon it is clear that as long as the life exist in this world the neurological activities will never come to an end. It will continue to an endless period. Therefore these activities are also nitya(*constant*).

[3]Human body is made up of seven types of dhatus namely- rasa, rakta, mamsa, meda,asthi, majja and sukra. The formation and development of the dhatus occurs due to srotas(*channels*). [4]Again, Ayurveda accepts that, mana(*human mind*) can travel throughout the body and it follows a proper route to perform its activities. So, without srotas(*channels*) mana cannot travel from one place to another. That means, mana(*human mind*) has its own srotas through which it is performing its activities.[5]Again, one more concept has been depicted is that even though vata, pitta and kapha has got different srotas but vayu is present in all the srotas of the body. Without vayu, pitta and kapha will not be able to perform their activities. [6]Regarding this matter Ayurveda says that Pitta, kapha, discharge of unwanted substances outside the body and the poshana (nourishment) of dhatus will not be possible without vayu because vayu is the main controlling factor behind this phenomenon. [7]Again, the word vata means gati and gandha, are the two fundamental principles through which it is performing its activities.. The word gati means gaman, gyan, prapti and moksha and the gandha means suchan or conduction. So, vata has the quality of movement which is necessary from the physiological point of view. Without movement the functional activities of the body will stop. But for such movement an action potential is needed and after that conduction occurs which is generated by proper functioning of vayu. [8]During the embryonic stage, vayu is responsible for producing all the channels of the body. This concept is depicted by acharya charaka in sutrasthana 12 number chapter. In this chapter the detail description regarding the physiological functions of vayu has been described. Some of the features are as follows as per charakapradipika:-

- [9]Vayu is responsible for controlling all the organs of the body. With the help of srotas or channels it is travelling to every nook and corner of the body. Vayu is responsible for supplying the nutrients to all micro and macro structures of the body.
- [10]Vayu is responsible for all kinds of movements inside the body. Here movement means all the physiological and functional activities of the body. Mana attains knowledge or no knowledge, the responsible factor behind this is vayu. Vayu is responsible for controlling mana. Again Vayu is responsible for helping mana to go towards the things which mana wants.
- [11]The srotas which are responsible for the movement of gyanendria and the srotas responsible for the movement of karmendria bring knowledge and for the prabritti and nibritti of the knowledge with atman is the karya of vayu.
- [12]The knowledge attained by gyanendria and karmendria established relation with buddhi and atma by the help of vayu. That means whatever the knowledge is obtained by gyanendria and karmendria reaches the higher centers with the help of vayu and only after that prabritti of buddhi occurs.
- [13]Vayu is responsible for the formation of all the parts of the body and is also responsible for healing and re-uniting the damaged body parts.
- [14]Vayu is the responsible factor of sabda and sparsha because the panchabhautik sangathana of vayu is akash and vayu. Again, vayu is the main responsible factor for srotra and sparshan. According to panchabhautik sangathana, aakash is the dominant mahabhuta for srotra indriya and vayu is the dominant mahabhuta for sparsha indriya. Since the panchabhautik sangathana of vata is vayu and aakash therefore for srotra and sparsha indriya, vayu is the main responsible factor. According to susruta, the five sense organs of the body all

the five mahabhutas are present that is prithvi, aakash, vayu, jala and agni. But in each sense organs one dominant mahabhuta is present that is in chakshu (eye) – agni mahabhuta, srotra (ear) – aakash mahabhuta, ghrana (nose) - prithvimahabhuta, rasanendriya (tongue) - jalamahabhuta and sparshanendriya (twacha)- vayu mahabhuta.

- [15]Vayu is the responsible factor behind the formation of voice. The voice is converted into speech due to the prabritti of atma.
- That means vayu circulating in the urah Pradesh (chest region) creates words slowly and steadily.
- [16]Vayu is the main responsible factor behind happiness and joy. Happiness and joy are the activities of mana (*human mind*). But vayu is responsible for controlling mana (*human mind*). For this reason it has been told by the acharyas of Ayurveda that vayu is the responsible factor behind happiness and joy.
- [17]Vayu is the responsible factor for the formation of petty and magnanimous channels of the body. During fetal stage vayu and aakash guna are present abundantly as resultporosity develops in the body. That means an open space between dhamani (veins) and shira (arteries) is produced due to vayu and aakasha guna.
- [18] Vayu is responsible to give proper shape to the fetus.

So, these are some of the functional aspects generated by proper functioning of vayu.[19]Acharya Charaka has used several synonymous words for srotas (*channels*). These are as followsSrotas, Shiraand Dhamani, Rasayani nadi, Nadi, Panthan, Marga, Orifice of the body, open and close orifice, place, asaya and niketa. These are the name of the channels present inside the dhatus. Some of them are visible and some are not. When these srotas become prakupita then the dhatus of the body also become prakupita. The srotas as well as dhatus of the body become prakupita due to the abnormal status of vata, pitta and kapha.

[20]Acharya Charaka has given vivid description regarding the swarupa of srotas

The srotas which represents a particular dhatu attains colour of that particular dhatu. That means the colour of the srotas depends upon the colour of the dhatu. The structure of the srotas is round, magnanimous or petty as well as they are long like climber plants. As the climber plants used to spread throughout the area in the same way the srotas spreads to every nook and corner of the body.

Modern review

[21]The evolution of the Nervous System dates back to the first development of nervous system in animals. Neurons developed as specialized electrical signaling cells in multicellular cells, adopting the mechanism of action potentials present in single motile celled and colonial eukaryotes. These use calcium rather than sodium action potentials, but the mechanism was probably adopted into neural electrical signaling in multicellular animals. [22]At a more integrated level, the primary function of the nervous system is to control the body. It does this by extracting information from the environment using sensory receptors, sending signals that encode this information to determine an appropriate response, and sending output signals to muscles or glands to activate the response. The evolution of a complex nervous system has made it possible for various animal species to have advanced perception abilities such as vision, complex social interactions, rapid co-ordination of organ system, and integrated processing of concurrent signals. In human, the sophistication of nervous system make it possible to have language, abstract representation of concepts, transmission of culture, and many other features of human society that would not exist without human brain.

[23]The nervous system derives its name from nerves, which are cylindrical bundles of fibers that emanate from the brain and central cord, and branch repeatedly to innervate every part of the body. Nerves are large enough to have been recognized by the ancient Egyptians, Greeks and Romans, but their internal structure was not understood until it became possible to examine them using a microscope.

The nervous system is involved in much way in nearly every body function. Many tracts, pathways and channels are present in the nervous system that plays a key role in activating the functional activities of the nervous system. [24]Neuron cell body contains a single nucleus. As with any other cells, the nucleus of the neuron is the source of information for gene expression. Extensive rough endoplasmic reticulum, Golgi apparatus and mitochondria surround the nucleus. Large number of neurofilaments (intermediate filaments) and microtubules organize the cytoplasm into distinct areas. Dendrites are short, often highly branching cytoplasmic extensions. Dendrites usually receive information from the other neurons or from sensory receptors and transmit the information towards the neuron cell body. An axon is a long cell process

extending from the neuron cell body. Each neuron has a single axon that extends from the cell body. The area where the axon leaves the neuron cell body is called the axon hillock. Each axon has a uniform diameter and may vary in length from a five millimeter to more than a meter.

[25]Gray matter consists of groups of neuron cell bodies and their dendrites, where there is little myelin. In the CNS, gray matter on the surface of the brain is called the cortex, and clusters of gray matter located deeper within the brain are called nuclei. In the PNS, a cluster of neuron cell bodies is called ganglion. White matter consists of bundles of parallel axons with their myelin sheaths, which are whitish in colour. White matter of the CNS forms nervetracts or conducting pathways, which propagate action potentials from one area of the CNS to another. In the PNS, bundles of axons and their connective sheaths are called nerves.

[26]All the cells exhibit electrical properties. The inside of most cell membrane is negatively charged compared to the outside of the cell membrane, which is positively charged. This uneven distribution of charge means the cell is polarized. In an unstimulated (or resting) cell, the uneven charge distribution is called the resting membrane potential. The difference in membrane permeability is due to the difference in the number of open ion channels. Ions move freely across the cell membrane, instead, ions must flow through ion channels, which are protein embedded in the cell membrane**.** Ions flow through channels due to the differences in their concentrations across the membrane. There are two basic types of ion channels: leak channels and gated ion channels. Leak ion channels are always open. Thus, as the name suggests, ion can leak across the membrane down their concentration gradient. When a cell is at rest, the membrane potential is established by diffusion of ions through leak channels. Because there are 50-100 times more K^+ leak channels than Na^+ leak channels, the resting membrane has much greater permeability to K^+ than to Na^+; therefore, the K^+ leak channels have the greatest contribution to the resting membrane potential. Gated ion channels are closed until opened by specific signals**.** Chemically Gated channels are opened by neurotransmitters or other chemicals, whereas voltage gated channels are opened by a change in membrane potential. When opened, the gated channels can change the membrane potential and are thus responsible for the action potential.

[27]Neurons are organized within the CNS to form pathways ranging from relatively simple to extremely complex. The two simplest pathways are converging and diverging pathways. In a converging pathway, two or more neurons synapse with the same neuron. This allows information transmitted in more than one neuronal pathway to converge into a single pathway. In a diverging pathway, the axon from one neuron divides (diverges) and synapses with more than one other neuron. This allows information transmitted in one neuronal pathway to diverge into two or more pathways.

[28]The Spinal Cord extends from the foramen magnum at the base of the skull to the second lumbar vertebra. A cross section of the spinal cord reveals that the spinal cord consists of a peripheral white matter portion and a central gray matter portion. The white matter consists of myelinated axons, and the gray matter is mainly a collection of neuron cell bodies. The white matter in each half of the spinal cord is organized into three columns, called the dorsal, ventral and lateral columns. Each column of the spinal cord contains Ascending and Descending tracts or pathways.

[29]Ascending Tracts

The spinal cord and brain stem contains Ascending Tracts or Pathways, that transmit information's via action potential from the periphery to various parts of the brain.

Pathway	**- Function**
Spinothalamic	- Pain, temperature, light touch, pressure, tickle, and itch sensations.
Dorsal Column	- Proprioception, touch, deep pressure, and vibration.
Spinocerebellar (anterior and posterior)	- Proprioception to cerebellum.

Pathways connecting the Spinal Cord to the Cerebral Cortex

[30]Spino Thalamic Pathways

a) Anterior and Lateral spinothalamic tracts.
b) Dorsolateral spino thalamic tracts
c) Spino-cervico thalamic pathways

[31]The Posterior column – Medial Lemniscus Pathway

a) Fasciculus gracilin and fasciculus cuneatus
b) Medial Lemniscus.

[32]Ascending Pathways ending in the brainstem

a) Spinoreticular Tracts
b) Spino-Olivary tracts
c) Spinomesencephalic Tracts

[33]Spinocerebellar Pathways

a) Dorsal spinocerebellar tract.
b) Ventral spinocerebellar tract
c) Cuneocerebellar tract

d) Rostral spinocerebellar pathways
e) A cervicocerebellar pathway

[34]Propriospinal Tracts

a) Tract of Lissauer
b) Comma tract
c) Septomarginal tract
d) Cornu commissural tract

[35]Descending Tracts

The descending tract control different types of movements. Tracts in the lateral columns are most important in controlling goal directed limb movements such as reaching and manipulations.

Pathway	Function
Lateral corticospinal	Muscle tone and skilled movements, especially of hands.
Anterior corticospinal	Muscle tone and movements of trunk muscles.
Indirect	
Rubrospinal	Movement coordination
Reticulospinal	Posture adjustments, especially during movements
Vestibulospinal	Posture and balance
Tectospinal	Movement in response to visual reflexes.

[36]Descending tracts ending in Spinal Cord

a) Corticospinal tracts
b) Rubrospinal tracts
c) Tectospinal tracts
d) Vestibulospinal tracts
e) Olivospinal tracts
f) Reticulospinal tracts

[37]Descending tracts ending in the brain stem

a) Corticonuclear tracts
b) Cortico ponto cerebellar pathways

[38]Afferent Autonomic Pathways

Sensory neuron related to the autonomic nervous system are general visceral afferent neurons and that their arrangement is similar to that of afferent fibers in cerebrospinal nerves. The neurons concerned are located in spinal ganglia, or in sensory ganglia of cranial nerves. They carry impulses arising in viscera, and in blood vessels, to the central nervous system. They may be associated with parasympathetic as well as the sympathetic systems. Autonomic afferents are necessary for various visceral reflexes. Most of these impulses are not consciously perceived. Some normal visceral sensations that reach consciousness include those hunger, nausea, distension of the urinary bladder or rectum, and sexual sensations. Some of touch or pressure perceived by the tongue and pharynx, and the sensation of taste are also visceral sensations. Sensory impulses from the same organ may travel both along sympathetic and parasympathetic nerves.

[39]Action Potentials

Muscles and nerve cells are excitable cells, meaning that the resting membrane potentials changes in response to stimuli that activate gated ion channels. The opening and closing of gated channels can change the permeability characteristics of the plasma membrane and hence change the membrane potential. The channels responsible for the action potentials are voltage gated Na^+ and K^+ channels. When the plasma membrane is at rest, the voltage gated channels are closed. When a stimulus is applied to a muscle cell or nerve cell, following neurotransmitters activation of chemically gated channels, Na^+ channels open very briefly, and Na^+ diffuse quickly into the cell. This movement of Na+, which is called local current, causes the inside of the cell membrane to become more positive, a change called depolarization. This depolarization results in a local current. If depolarization is not strong enough, the Na+ channels close again, and the local potential disappears without being conducted along the nerve cell membrane. If depolarization is large enough, Na^+ enter the cell so that the local potential reaches a threshold value. This threshold depolarization causes voltage gated Na^+ channels to open. Threshold is most often reached at the axon hillock, near the cell body. The opening of these channels causes a massive, 600- fold increase in

membrane permeability to Na^+. Voltage gated K^+ channels also begin to open. As more Na^+ enter the cell, depolarization occurs until a brief reversal of charge take place across the membrane- the inside of the cell membrane become positive relative to the outside of the cell membrane. The charge reveals causes Na^+ channels to close and K^+ channels to open. Na^+ then stops entering the cell, and K^+ leaves the cell. This repolarizes the cell membrane to its resting membrane potential. Depolarization and repolarization constitute an action potential. In summary, the resting membrane potential is set by the activity of the leak channels. On stimulations, chemically gated channels are opened and initiate local potentials. If sufficiently strong, the local potentials activate voltage gated channels to initiate action potentials.[40] Gastro intestinal physiology is a branch of human physiology addressing the physical function of the gastrointestinal (GI) system. The major processes occurring in the GI system are that of motility, secretion, regulation, digestion and circulation. The function and coordination of each of these actions is vital in maintaining GI health, and thus the digestion of nutrients for the entire body.The GI tract generates motility using smooth muscles subunits linked by gap junctions. These subunits fire spontaneously in either a tonic or a phasic fashion. Tonic contractions are those contractions that are maintained from several minutes up to hours at a time. These occur in the sphincters of the tract, as well as in the anterior stomach. The other type of contractions, called phasic contractions, consist of brief periods of both relaxation and contraction, occurring in the posterior stomach and the small intestine, and are carried out by the muscularis externa.The stimulation for these contractions likely originates in modified smooth muscle cells called interstitial cells of Cajal. These cells cause spontaneous cycles of slow wave potentials that can cause action potentials in smooth muscle cells. They are associated with the contractile smooth muscle via gap junctions. These slow wave potentials must reach a threshold level for the action potential to occur, whereupon Ca^{2+} channels on the smooth muscle open and an action potential occurs. As the contraction is graded based upon how much Ca^{2+} enters the cell, the longer the duration of slow wave, the more action potentials occur. This in turn results in greater contraction force from the smooth muscle. Both amplitude and duration of the slow waves can be modified based upon the presence of neurotransmitters, hormones or other paracrine signalling. The number of slow wave potentials per minute varies based upon the location in the digestive tract. This number ranges from 3 waves/min in the stomach to 12 waves/min in the intestines.

Discussion

Ayurveda has given utmost importance to srotas for every murtiman bhavas of the body. By saying murtiman bhavas Ayurveda means that flow of blood, neurological activities, activities of the organs, systems, nutrition to all the cells of the body are dependent on srotas (Channels). Dhatuposhana siddhanta, physiological and functional activities of the human body, formation of diseases are dependent on srotas (*channels*).Modern neurobiologist accepts the importance of channels or pathways. Without the presence of these channels the human society will not exist. The nervous system is involved in much way in nearly every body functions. In this way concept of srotas (*channels*) is very important from every aspects. Without srotas the physiological as well as functional activities of the human body will not be possible. Vata follows all the srotas (channels) of the body to perform its activities. Here vata can be assumed to be a local current following all the channels of the body. Without the presence of this electrical current no action potentials can work and this current is even necessary for cell to cell interactions and it is an established phenomenon.Ayurveda says that there is sanyoga and biyoga between the paramanus of the human body and for this sanyoga (*connection*) and biyoga (*disconnection*) vayu, karma (*activity*) and swabhawa (*nature*) is responsible. Here chakrapani has pointed out that vayu has the quality to establish connectionbetween the paramanus (cells) for the development of the human body and when disconnection occurs then destruction of the human body occurs. That means vayu is following a particular srota for the communication between the paramanus (cells) which can be told in broad sense as cell signaling. The signal that is obtained by a particular cell is transferred to another cell and this procedure continues throughout the life and destructions come when there is disconnection between the cells occurring at a particular age of a person.[41]In this regard modern neurobiologist says that, during mouse cortical development, few physiological changes occur at late embryonic stages when newborn neurons generated in the ventricular zone migrate through the intermediate zone. The majority of these migrating neurons express

immature sodium and potassium currents characterized by small amplitudes relative to adult cortical neurons. In contrast, after reaching the cortical plate, rapid maturation occurs in which I_{K^+}, I_{Na^+}, and action potential amplitudes increase in parallel with a decrease in AP durations. Simultaneously, early postnatal neurons gain the capacity to fire repetitive trains of AP's. These characteristics, together with synaptic activity, comprise the hallmarks of a mature functional neuron. [42]As a person ages, sensory function gradually declines because in the number of sensory neurons, the function of the remaining neurons, and CNS processing. Again Ayurveda accepts that mana (human mind) can travel to every nook and corner of the human body and it follows a proper route to perform its activities. As we know that the activities of mana (human mind) is controlled by vayu therefore if vayu will not work hand to hand with mana (human mind) then the activities will become stabdha. These features can be seen in case of paralysis especially in LMN disease. When one particular part of the body is affected then the patient cannot move that part even though thinking process is going on in the human brain. That means there is some deformity in the movement of vayu in that particular part due to some pathological condition. From above said example, the dominancy of vayu can be ascertained. Human being is grasping the knowledge by the conjoint function of atma, mana, indriya and indriya arthas and this knowledge is carried out as sharira chesta by the functional activities of vayu.Again, gati or movement and suchan or conduction is the meaning of the word vata. That means movement of vata is occurring throughout the body with the help of srotas and the sharira chestas of the body that physiological and functional are occurring through proper conduction. For this reason acharya Charaka has said that vayu by using its own pathway vata performs its activities both on the human mind as well as human body. By dividing the pathways that is sharirik and manashik we can assume that all the electrical activities that is happening in the human brain and body are due to two active principles of vayu that is movement and conduction.Vayu is responsible for controlling all the organs of the body. All the organs of the body have their own functional acpects and these functions are occurring in the presence of Sama avastha of vayu. The organs of the body are getting proper nutrition due to proper functioning of vayu. After the digestion of food substances the nutrient part is carried to all the parts of the body due to proper functioning of vayu. This factor is described by acharya charaka in 28 number chapter of sutrasthana. Modern neurologist also accepts the same phenomenon. Many pathways have been demarcated controlling the body posture of a person and many pathways are been established controlling the physiological functions of the body. Again, vayu is responsible for all kinds of movements inside the body. Prana, udana, vyana, samana and apana are the five types of vayu. All the functional and physiological movements of the body are controlled by these 5 types of vayu. These 5 types of vayu by residing in their dominant areas carry put the functional activities of the body. Here it can be assumed that the functions of the vayu vary. Some are acting as a local current and some are acting as pressure gradient and some are acting as a force gradient and because of this reason the ayurved researchers have divided vayu into five types depending on their functional activities.Again, vayu is responsible for controlling the activities of mana (human mind). Prabritti of mana in subha vishayas and nibritti of mana from asubha vishayas are controlled by vayu. But when the normal function of vayu is disrupted then prabritti of mana in asubha vishayas occurs and the person indulge themselves in pragyaparadh (sinful activities) activities and pragyaparadh itself is controlled by mana (human mind).Here it can be assumed that the developmental process of the nervous system has made it possible for such complex interactions. Again, vayu is responsible for the stimulation of both the karmendriya and gyanendriya. Regarding this matter acharya charaka has said that for attaining knowledge indriya, indriya artha, mana and atma should be present and only after that utpatti of buddhi (knowledge) occurs. After the utpatti of buddhi (knowledge) the person can be able to the functional activities and the dharana of buddhi (knowledge) is one of the functional activities of prana vayu. So, without vayu the functional activity of the body will be absurd.Again many acharyas of Ayurveda has accepted that vayu is the responsible factor for the formation of the parts of the body because for the formation of body parts proper signaling is necessary between the cells and Ayurveda has given clear cut description regarding the matter and pointed out that for sanyoga and biyoga between the paramanus vayu, karma and swabhawa is necessary.Again acharyas of Ayurveda has accepted that the formation of voice and the conversion of voice to word is one of the functional activities of vayu. The function is

generated by vyan vayu. Vyan vayu residing in the Urah Pradesh carry out these functional activities. Vayu is the responsible factor for bringing happiness and peace in one's life. These are related factors of mana (human mind). Again, mana is controlled by vayu. So when vayu is in normal state the function of mana will also be normal and Ayurveda also accepts that the karyas of mana are the karyas of atma. So, by the above mentioned phenomenon we can make out that when the functional activities of vayu is in sama avastha then the knowledge obtained by atma and prabritti of atma will be in subha vishayas.

Conclusion

From the vivid discussion we can make out that channels are present in every nook and corner of the body and they are responsible for carrying out each and every functional activities of the human body. Ayurvedic researchers could make out the presence of srotas or channels 5000 years earlier and they by using their techniques could make out the importance of srotas in the human body. By using their skilled techniques they could make out that some are visible and some are not because it can be seen that some of the channels are so micro in structure that they need high power microscope to understand the basic structure of such channels. Nerve itself is a channel and it spreads throughout the body like a climber plants. All the channels are governed by the flow of electric currents responsible for the development of the action potentials without which none of the functional activities of the human will take place. Ayurveda also accepts the same concepts that for the development of functional and physiological activities of the human body srotas and vayu are essential otherwise none of the body activities will take place. For the formation of diseases also channels are responsible because in a diseased state the signaling process is hampered. All the complex interactions of the human mind are controlled by the nervous system. Emotions , happiness, joy, enthusiasm, sorrow as well as addictions are some of the features of the human being occurs because of the secretions of some kinds chemicals and the flow of these chemicals are occurring with the help of their of their respective pathways. These are some of the evolutionary development of the nervous system. So at the end it can be concluded that srotas as Ayurveda has depicted in Ayurveda literatures are nothing but complex pathways or channels of the nervous system governed by vayu for carrying out the functional and physiological activities of the human body. This article needs further discussion so that we can a final conclusion in the near future.

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