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The Critical Role of Vagus Nerve in Human Body with Relation to *Rachana Sharir*

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Abstract
The vagus nerve represents the main component of the parasympathaetic nervous sytem. It is the 10th cranial nerve(X) and the longest one in the body .It contains motor and sensory functions. This nerve travels throughout the body influencing many organs and regions of the body, like tongue, pharynx, heart, and GIT(gastrointestinal tract).it is called as the key component of the autonomic nervous system that performs involuntary actions like respiration, blood circulation and digestion . Here involuntary means one cannot control the actions .

keywords : vagus, prana, nervous, vata

Introduction

Ayurveda the ancient science of life, emphasizes on a holistic approachto health by balancing doshas ,optomizing the functioning of strotas(body channels),and maintain the integrity of manas(mind) and Sharira(body).the prana vata (a subtype of vata dosha), governs respiration ,mental activities and heart rate like essential functions known to be closely related with vagal activity.

Our body has complex system that plays a central role in regulating its various crucial functions.among many nerves Vagus nerve stands out for its profound influence on physical and mental health .often reffered to as wandering nerve due to its extensive reach throughout the body,this article explores the anatomy of vagus nerve and its role in overall health .

Structural Details of Vagus Nerve

The vagus nerve exits from the medulla oblongata in the groove between the olive and the inferior cerebellar peduncle, leaving the skull through the middle compartment of the jugular foramen.In the neck,the vagus nerve provides required innervation to most of the muscles of the pharynx and larynx, which are responsible for swallowing and vocalization . in the thorax it provides the main parasympathetic supply to the heart and stimulates a reduction in the heart rate . in the instestine , the vagus nerve regulates the contraction of smooth muscles and glandular secretion .preganglionic neurons of the vagal efferent fibres emerge from the dorsal motor nucleus of the vagus nerve located in the medulla , and innervate the muscular and mucosal layers of the gut both in lamina propria and muscularis externa. The celiac branch supplies the intestine from proximal dudodenum to the distal part of descending colon. The abdominal vagal afferents , include mucosal mechanoreceptors, chemoreceptors, and tension receptors in the esophagus , stomach and proximal small intestine and sensory endings in the liver and pancreas.

Brainstem (Medulla Oblongata)
↓
Jugular Foramen (Exit skull)
↓
Neck (Carotid Sheath)
↓—— Auricular branch (ear sensation)
↓—— Pharyngeal branches (pharynx, soft palate)
↓—— Superior Laryngeal Nerve
↓—— Recurrent Laryngeal Nerve
↓
Thorax (Parasympathetic innervation to Heart and Lungs)
↓
Esophageal Plexus (around esophagus)
↓
Abdomen (stomach, intestines, liver, pancreas)

The vagus nerve emerges from the medulla oblongata of the brainstem and exits the skull through the jugular foramen. It extends through the neck, thorax and abdomen innervating a wide range of organs.

Major branches include: left and right vagal branches join to form vagal trunks

- **Auricular branch** (Arnold's nerve) – external ear sensation
- **Pharyngeal branches** – motor to pharynx and soft palate
- **Superior laryngeal nerve** – sensation above vocal cords
- **Recurrent laryngeal nerve** – motor to laryngeal muscles
- **Thoracic and abdominal branches** – parasympathetic control of heart, lungs, and digestive tract

Sharir Rachana Correlation: The extensive distribution of the vagus nerve can be seen as *pranavah strotas*(channel responsible for the flow of life force), influencing the respiration digestion and cardiac functions.

Functions

The vagus nerve has multifaceted roles:

- **Parasympathetic control**: Slows heart rate, stimulates digestion, regulates respiratory rate.
- **Motor functions**: Controls muscles for voice, swallowing, and cough reflex.
- **Sensory functions**: Conveys sensory information from the ear, thorax, and abdomen to the brain.

In Ayurveda, functions of the vagus nerve can be related to the *Vata Dosha*, particularly *Prana Vata* (governing the brain, heart, respiration, and circulation).

Clinical Significance

- **Vagal stimulation** is used therapeutically for conditions like epilepsy, depression, and inflammatory diseases.

- **Vasovagal syncope**: Overstimulation can cause sudden fainting.
- **Dysfunctions**: Injury or disorder of the vagus nerve can lead to hoarseness, difficulty swallowing (dysphagia), and autonomic dysregulation.

Ayurvedic View: Symptoms arising from vagus nerve dysfunction may be interpreted as vitiation of *Vata dosha*, especially *Prana* and *Udana Vata* disturbances.

Sharir Rachana and Ancient Correlations

Ayurvedic descriptions of *Srotas* (channels) and *Marma points* suggest an understanding of key anatomical and functional areas influenced by the vagus nerve:

- *Marma points*: Critical points such as *Sthapani Marma* (forehead), *Hridaya Marma* (heart region)and indravasti(centre of calf muscles) correspond to vagus-innervated structures .so the therapeutic methods on these points do stimulate the actions of vagus nerve that might be beneficial for body and mind.

Moreover, disturbances in *Prana Vata* (responsible for brain and heart functions) share parallels with vagus nerve disorders, reflecting the depth of ancient anatomical knowledge.

Certain accupunture points like CV12,CV17,HT7 and PC6 are known to stimulate the vagus nerve and helping in digestion and proper breathing,

Vagal tone and mental health

Vagus nerve plays a vital role in mental health , affecting brain gut axis and acts in mood regulation, stress response, and other cognitive functions.its health and proper functioning plays following roles :

- Stress and anxiety: high vagal tone Is associated with a greater ability to recover from stress as it promotes activation to parasympathetic nervous system .This helps in reducing exess mental stress, muscle spasm and increased heart rate during the process.
- Depression: low vagal tone is associated with higher chances of being in the state of depression, as it is associated with reduced activity of parasympathetic nervous system. So the imbalance leads to the state of fatigue,sleep irregularities, low energy and weak digestion.

Improving the vagal tone

Knowing the major importance in various activities there are many strategies to improve the vagal tone so that its basic actions should not get hampered.

- Meditation: meditation and deep breathing exercises promotes good results
- Creating positive attitudes towards life
- Indulging in Satvik ahar-vihar (adopting a lifestyle that includes healthy, peaceful activities for both physical and mental wellbieng).

Conclusion

The vagus nerve is the crtical component of nervous system, with far reaching effects on physical and mental health.by understand the importance of it, and exploring the strategies to enchance its functions, one can take simple proactive steps to support health and quality life can be improved .

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