Ayurveda has a unique concept of purification of the body from the accumulated wastes and toxins in body, which may otherwise cause harm to the body and may lead to many non communication diseases. For this purpose Pancha Karma therapy is maintained since time immemorial which now is very popular all over the World. People now a days call it detoxification therapy. The physicians who use it or the persons who undergo this therapy are satisfied by the relief provided by it. Its popularity can be guessed by the fact that even hotels and Spa are earning huge money in the name of Pancha Karma. All of these five measures has been attributed multifaceted actions i.e. first the drugs used for these measures are absorbed in the body system and then reaches at the site of the lesion wherein first it soften the nexus of Dosha and Dushya and then breaks the harmful toxic molecules into very small and inert molecules which are brought into gastro intestinal tract wherefrom are thrown out of the body through the nearest physiological route i.e. either mouth, anus or nose. This mode of action described in Ayurveda texts is very complex and required scientific explanation and substantiation. Particularly Nasya Karma which is considered the best therapy to remove the toxins from brain, puts many questions to the beginners because nasal cavity has got no direct anatomical connection with the brain, but Ayurveda says that nose is a pharmacological gateway of brain (Nasa hi Shirasao Dwaram) for removing the toxins from the brain.

In Ayurveda it is mentioned that the drug administered through nose in Nasya Karma reaches the brain through a part known as Shritygata Karma, where it breaks the nexus of the toxins with brain tissues and then bring those molecules to nose wherefrom thrown out through the secretions of caused by Nasya Karma. This Karma is an anatomo-physiological part in the nose, the details of which are discussed in the article published in this issue of JAPS. Therefore the question is whether nose is really a pharmacological gateway for drug delivery to brain as well as to bring back the toxins to nose. In this regard following recent observations of the scientists are very pertinent.

A scientist Massimiliano Di Cagno, assistant professor at the department of physics, chemistry and pharmacy, university of Southern Denmark, said that people with brain diseases are often given huge amount of unnecessary drugs through oral route. During long life or if a patient the patients have a chronic disease, this may become problematic for their health. Because when it comes to brain diseases, pills administered orally are actually an extremely ineffective way to deliver drugs to brain due blood barrier restriction by the brain to oral use.

He further said that his colleagues at University of Southern Denmark and Aalborg University have turned their attention to the nose specifically the nasal wall and the slimy mucosa that covers it. It is well known that the substances such as cocaine, snuffs etc administered through nose are assimilated extremely quickly and directly reaches brain. But many medical substances however, need help to be transported through the nasal wall and further on to the relevant places of the brain. The vehicles for drug delivery through the nose are typically made of so called polymers.

A polymer is a large molecule composed of a large number of repeats of one or more types of atoms. Polymers can be natural or synthetic, simple or complex (Deccan Herald, 23 May 2014, page 11).

Alzheimer’s disease is characterized by loss of memory. In this disease clumps of misfolded amyloid beta protein fragments produce plaques around synapses (connecting point between two neurons). These plaques hinder the communication between the neurons relating to memory leading to diminished memory. Recently scientists at MIT, USA have discovered that exposing mice to 40 hertz light signals and sound waves remove the plaque in their brain.

The nasal and sonorous sound of proper chanting of Mantra/Om creates inside the brain which increases the possibility of producing 40 hertz brain waves. As both auditory and visual cortex where sound and light signals respectively are processed are in a certain section of the brain, it is still under investigation that how such sound waves produced in the nose create 40 hertz for the whole brain. Here also nose is involved for the treatment of brain disease such as memory loss.

Some scientist speculates that the memory region of the brain known as hippocampus which is the first region of brain affected by plaques may be positively affected by chanting. In Nasya sneezes are produced which produce loud nasal sound and may produce waves in brain up to 40 hertz. It is pertinent to remind that Nasya given to an unconscious person provides consciousness. This observation also clearly substantiates the role of nose in drug delivery to brain.

Generally the drugs used for Shodhana Nasya are irritants which produce mild inflammation leading to increase in permeability of the blood vessels. Thus even the big drug molecules can be absorbed faster through slimy mucosa of nose. Intracranial course of internal carotid artery is through the sinus. The cortical centers of all the senses are supplied by the branches of the internal carotid artery. So it can be said that the artery is indirectly helping normal functions of sense organs.

Stimulus caused by irritation of the drugs passes through branches of trigeminal nerve and reaches the centre, from where a series of reactions are triggered which results in sneezing. Maxillary nerve is a division of trigeminal nerve and is purely sensory. It receives sensory fibres from eyes, nose and mouth. All the sensory stimulus first reaches the thalamus for relay and from there passes to cerebral cortex, except olfactory impulse. The olfactory sensations indirectly pass from amygdala to thalamus. Any pathology related with thalamus can affect the normal functioning of the senses.

In this way nose is physiologically and pharmacology is connected with brain and Nasya Karma which itself is multifaceted process involving preparing, performing and after care may be very well used for drug delivery to brain.