Review Article

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REVIEW ARTICLE ON THE CONCEPT OF BUDDHI

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ABSTRACT

In Ayurveda the concept of Buddha covers a wide range. It actually considered as the ultimate knowledge. At the beginning, proper perception of knowledge takes place by indriyas later it processed with mana, after manovyapara the Buddhi was formed. In human intelligence is the ability to acquire and apply knowledge and skills. Language, memory and speech all these are essential for acquire and apply knowledge, hence considered as higher intellectual functions. In Ayurveda, till date there aren't enough studies available on the concept of Buddhi. Here the detailed description of concept of Buddhi and its significance in Ayurvedic perspective have been underexplored. Certain Buddhi gunas explained in Mahabharata. It can be correlated with different intellectual functions. On the basis of different sensory perception Buddhi has two types' panchendriya Buddhi and Manobuddhi. Anatomically the panchendriya Buddhi considered as different sensory cortices and its association cortices because the functions are same. Physiologically the Buddhi is considered as Manobuddhi which it can be functionally correlated with process of cognition. Pathological condition of Buddhi can be correlated with the concept of dhi vibhrama and can be correlated with different types of agnosia.

Keywords: Buddhi, Higher intellectual functions, Panchendriya Buddhi, Manobuddhi, Dhi vibhrama, Association cortices

INTRODUCTION

Buddhi considered as the ultimate outcome of manovyapara. It is a separate entity which works in association with indriyas and manas. According to Ayurvedic concepts, Buddhi is the knowledge which is gained after the perception of objects through indriyas along with manas¹. Cognition and its retention take place under the area of Medha. In Ayurvedic classics the word 'Medha' (power of retention of knowledge) as the faculty of Buddhi (intellect) and Buddhi (intellect) is the Guna (property) of Atma (soul). It manifests with the combination of Atma (soul) and Manas (mind). Medha (power of retention of knowledge) can be said to be an inherent ability. In each individual, production of knowledge starts with the perception of the objects. Indriya (senses) perceives the objects and carry the information from the environment to the Manas (mind). The received information is given a certain form as it passes through the Chintana (things requiring thought), Vichara (consideration), Uha (hypothesis) etc and is then sent to Atma (soul). After that knowledge is known by Atma (soul). It is stored in Medha (power of retention of knowledge)². So, considering the above conceptual details, there is a doubt arising about how the Buddhi really formed in our mind and what are the areas actually responsible for this. This article aims at better understanding as well as the significance of Buddhi by considering Buddhi as physiological and anatomical entity with the help of modern research and literature.

Buddhi as the ultimate knowledge

According to Sushruta, Buddhi is considered as the first manifestation of Avyakta prakruti i.e. from Avyakta prakruti Mahat or Buddhi is formed³. Later from this mahat/ Buddhi, ahamkaras and all other indriyas are formed. It is the faculty for logic and reasoning. Buddhi is derived from the root 'budh grahane' that means an event through which the knowledge is gained. According to Tarka sangraha, Buddhi is that cognition

which promotes all behaviours and activities of living beings. It considered as an act to having decided. According to Acharya Charaka Objects are perceived with the help of sense organs together with mind. This perception is purely mental in the beginning, the practical advantage or disadvantages are ascertained thereafter. The intellect, which determines specific properties of the objects that which impel the individual to speak or act intellectually. According to Dalhana, "Buddhi" is the one which is formed after analyzing pros and cons of the object⁴.

Synonyms: Mahat, Upalabdhi, Pratyaya, Jnana, Maneesha, Dheeshana, Dhi, Prajna, Mati, Medha⁵.

Types

On basis of sensual perception

Panchendriya buddhi – Charaka explains "Indriya pancha panchaka" (five pentads of senses) are the collection of 25 elements, which are related to the each indriyas (sensory organs)⁶. They define the structural and functional components of indriyas in brief. "Indriya pancha panchaka" consists of pancha indriya (five sensory faculties), pancha indriya dravya (five sensory materials), pancha indriya adhishtana (five senseorgans structural), pancha indriya artha (objects of perception/five sensory stimuli) and pancha indriya buddhi (five sensory perceptions). Indriya buddhis are the basic intelligence or knowledge embedded in the indriyas, which enables indriyas to perceive the knowledge of the related object. The indriya buddhi helps an indriya to perceive its related information. Chakshu buddhi, Shrotra buddhi, Ghraana buddhi, Rasana buddhi and Sparshana buddhi are considered as Pancha indriya buddhis⁷.

Manobuddhi – intellect emanated through manas, responsible for Tatva Jnana, Dharana and Grahana etc.

According to Tarka sangraha smriti (memory) and anubhava (experience) considered as the types of buddhi.

Seat

Hridaya – According to Charaka Samhita Vijnana, indriya, panchendriya artha, atma with gunas, manas are situated in Hridaya. Atma guna has been referred as adhyatma gunas by Chakrapani. Buddhi is considered as one among atma gunas

In Ashtanga Hridaya Sadhaka pitta, that which responsible for Meda etc situated in Hridaya.

Shiras – According to Bhela Samhita, Buddhi vaisheshika alochaka pitta situated in bhru madhya. It causes sukshma buddhi.

Buddhi gunas as intellectual functions

Buddhi gunas explained in 'Mahabharata' are as follow

Vyavasaya (enthusiasm), Samadhita- (withhold from unwanted thoughts), Pratipatti (to acquire knowledge by 4 pramanas), Grahana (grasping power), Dharana (retaining power of learnt knowledge), Tatva Jnana (conceptual thinking), Dhi (power of discrimination), Dhriti (firmness or resolution), Smriti (storage of previous experiences)

Buddhi gunas can be correlated with different types of intellectual functions. The higher mental functions of human brain comprises in two terms cognition and behaviour. Cognition is composed of intellectual function like memory, speech, language, complex perception, orientation, attention, judgement, retention power, planning, decision- making. Behaviour is the manifestation of these cognitive functions.

Embryological development

According to Sushruta Samhita development of Buddhi takes place in 6th month of gestation⁸.

In modern concept during the 6th month of gestation the foetus is fully grown and getting stronger day by day. Baby's skin and muscles get matured and experience the baby's movements in the form of kicks and squirms. Baby starts reacting to sound and can even sense light and darkness by this time which is closely related with development of indriyas and starting the development of Buddhi in Ayurvedic concept.

Anatomical consideration of buddhi

Anatomically the indriya Buddhi correlated with different association cortices.

Chakshu indriya Buddhi is responsible for seeing and understanding rupa, so it can be correlated with primary visual cortex (area 17) and visual association areas (area 18 and 19), which lies in occipital lobe. They are concerned with perception of visual impulses, interpretation of visual impulses and concern with the movements of eyeball respectively. Through this the recognition and identification of objects in the light takes place.

Shrotra indriya Buddhi helps to hear and understand Shabda (sound/ speech), thus can be compared with auditory association cortex. Auditory association area corresponds to Brodmann's areas 22, 21, 20. Wernicke's area is a sensory speech center situated in dominant hemisphere. It concerns with interpretation

of meaning of what is heard and comprehension of spoken language. Area 21, 20 are responsible for interpretation and integration of auditory impulses.

Sparshana indriya Buddhi concerns with feeling and understanding about touch sensation. It provides the knowledge and information about Sparsha (touch stimuli). The functions of Sparshana indriya Buddhi closely related to somatosensory association areas (area 5, 7). It helps in recognition of objects, discrimination of different intensity of touch stimulus.

Rasana indriya Buddhi provides the knowledge and information about different rasa (taste). The gustatory cortex is the area of the brain responsible for the sensation of taste. It is situated in the insular cortex and frontal cortex. It is concerned with the perception of taste.

Ghraana indriya Buddhi is concerned with the knowledge and information about Gandha (smell). Functions are similar to the functions of olfactory cortex (area 28, 34). Orbitofrontal cortex is mainly responsible for the identification of odours and helps to discriminate different odours. The piriform cortex is functionally heterogeneous and participates in numerous aspects of olfactory learning and memory.

Physiological consideration of Buddhi

While considering Buddhi physiologically, we can consider the process of jnanotpatti. Jnanotpatti is same as the process of development of Manobuddhi i.e. the process of genesis of knowledge. Jnana is obtained by the contact of soul with the indriya and their artha through the presence of mind. Involvement of artha, indriya, mana, Buddhi and atma also present in the genesis of knowledge.

According to Acharya Charaka, Atma the empirical soul is endowed with the power of perception, when it is associated with instruments (karana). The karanas (instruments) are manas, Buddhi, Jananendriya, karmendriya.

The process of perception is explained by Acharya Charaka, i.e. Indriya makes contact with indriyarth in the presence of manas (samanaskena). Manas determine whether the artha is guna or dosha (gunato doshato).

Buddhi then proceeds to accept the artha if it is guna or rejects it if dosha - known as nishchayatmaka Buddhi.

Practical advantages and disadvantages are determined by the Buddhi (intellect). All actions are integrative and interpretative. Such interpretation is purposeful - buddhipoorvakam.

Jnanotpatti in neurophysiological view

The nervous system processes millions of incoming information through receptors which is transmitted to sensory and integrating areas. Each type of receptor is highly sensitive to one type of stimulus for which it is designed (Muller's law). This ability of each receptor to respond to only a particular stimulus as similar to each indriya responding only to that artha which is corresponding to its bhuta structure

For example - Somatic senses include touch, pressure, pain, heat, cold etc and Special senses like vision, hearing, taste and smell (Rupa, Shabda, Rasa, Sparsha and Gandha)

Samyoga in comparison to synapse

Information is transmitted mainly in the form of impulses through a succession of neurons at the synapse. Synapses are the basis of the functioning of all sensory perceptions.

Connection or Samyoga between artha, indriya, mana and Buddhi is essential for jnanotpatti. Sannikarsha in jnanotpatti can be compared with synapses of nervous system.

In pathway of sensations from receptor to spinal cord and thalamus, crude discrimination of senses occurs. It comes under the title indriya. The information occurs from this considered as Nirvikalpa Jnana (knowledge perceived by direct contact with objects).

Localization and interpretation of sensation occurs in the cerebral cortex after critical analysis of sensations and discriminate different knowledge and it can be considered as Savikalpa Jnana Vichara (Role of MANAS involved). It can be considered as Manobuddhi. After deciphering sensory information from respective cortices Manobuddhi evolved. Manobuddhi is the ultimate outcome of knowledge which is formed in association cortices.

There are mainly 3 association areas in brain.⁹

Parieto-occipitotemporal association area, which has several functional subareas such as analysis of spatial, coordinates of body, Wernicke's area for language comprehension and in angular gyrus it helps in initial process of reading and interprets visual information.

Prefrontal association area / orbitofrontal cortex it helps to plan complex patterns and sequences of motor movements provides thought processes in mind and elaboration of thoughts. Prefrontal Areas (9, 10, 11, 12, 13, 14, 23, 24, 29, 32); which are responsible for higher functions (learning, memory, emotions, social behaviour), personality of individuals, autonomic changes during emotional conditions. It is also called centre for planned actions and Seat of intelligence (Organ of Mind)

The Limbic association area; which is responsible for behaviour, emotions and motivation of individuals

At thalamic level integration of sensory impulses occur and it is a crude centre for perception of sensations, affective nature of sensation can be identified here.

Buddhi vibhrama as agnosia

According to Acharya Charaka explains dhi vibhrama (buddhi vibhrama) is the condition in which the individual perceives useful things as harmful and understand good thing as bad one and vice versa.¹⁰ It is actually considered as perceptual disorder in which sensation is preserved but the ability to recognize or to identify a stimulus or know its meaning is lost. Agnosia, the word meaning is "without knowledge." Patients with agnosia cannot understand or recognize or identify what they see, hear or feel. Often there is loss of ability to recognize objects, persons, sound,

shapes, or smells while the specific sense is not defective nor is there any significant memory loss.

CONCLUSION

Buddhi is considered as the ultimate knowledge which is formed after the Samyoga of indriyas, indriyarthas, manas and atma. There are various types of buddhi based on sensual perception. The different intellectual functions are considered as buddhi gunas. Panchendriya buddhi anatomically correlated with different sensory cortices and association areas of respective sensations (visual, olfactory, gustatory etc). Localization and interpretation of sensation occurs in the cerebral cortex after critical analysis of sensations and discriminate different knowledge and it can be considered as Manobuddhi. It takes place different association cortices and at the thalamic level. As buddhi considered as neurophysiologically, it comes under a wide range function of associations' cortices such as prefrontal association area, Parieto-occipito temporal association area, limbic association areas etc. Agnosia is the term comes under the concept of dhi vibhrama. The functions of the association areas such as prefrontal cortex/frontal association area, parieto occipital temporal association areas etc clearly denote the concept of "Buddhi" as explained in Ayurvedic classics.

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