

AN ANATOMY OF HUMAN BRAIN: A REVIEW

Archana Salunkhe

Navsahyadri college of Pharmacy, Nasarapur, Pune, Maharashtra, India.

ARTICLE INFO

Mini Review Article

Received: 31 May, 2020

Accepted: 24 June, 2020

Corresponding Author:

† Archana Salunkhe

E-mail :

archanasalunke2017@gmail.com

Navsahyadri college of
Pharmacy, Nasarapur, Pune,
Maharashtra, India.

ABSTRACT

The brain is most important organ in all living organism. It controlled all function in body. Basically brain divided into to part left brain and right brain. It also consists of the forebrain, midbrain and hindbrain. An adult brain weighs between 1.0 kg – 1.5 kg. The cerebrum is the largest part of the brain. The cerebrum is divided into 4 lobes i.e. Frontal lobe, Parietal lobe, Occipital lobe, Temporal lobe. The hypothalamus is a small and essential part of the brain. The cerebellum is the second largest part of the brain. The pons is the primary structure of the brain stem present between the midbrain and medulla oblongata. The pons is the primary structure of the brain stem present between the midbrain and medulla oblongata. Skull is outer most cover of brain to protect the brain from injury.

KEYWORDS: Brain, cranial nerve , lobes , area

© www.albertscience.com, All Right Reserved.

INTRODUCTION:

The brain is most important organ in all living organism. It controlled all function in body. The basic parts of the human brain structure are the forebrain, midbrain and hindbrain, according to Inner body. The forebrain is made up of the cerebrum, the hypothalamus and the thalamus and the pineal gland. The cerebrum is the major area of the brain and controls the higher brain function. The human brain is the central organ of the human nervous system, and with the spinal cord makes up the central nervous system. The cerebrum is the largest part of the human brain. It is divided into two cerebral hemispheres. The cerebral cortex is an external layer of grey matter, covering the core of white matter. Cerebrospinal fluid is a clear, colourless transcellular fluid that circulates around the brain in the subarachnoid space, in the ventricular system, and in the central canal of the spinal cord. An adult brain weighs between 1.0 kg – 1.5 kg [1-4].

STRUCTURE OF BRAIN:

BRAIN:

Brain [1-2] is the mass of nerve tissue in the anterior end of an organism. The brain consist of cerebrum, cerebellum, brainstem, Medulla Oblongata, pons.

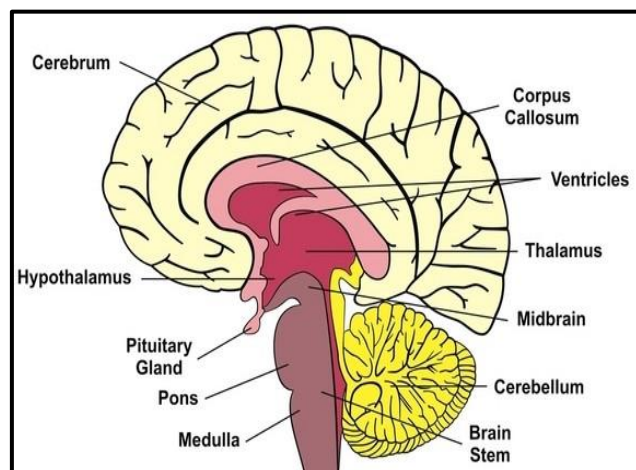


Fig.1.Main part of human brain

CEREBRUM:

The cerebrum is the largest part of the brain. It consists of the cerebral cortex and other subcortical structures. It is consist of two cerebral hemispheres that are joined together by heavy, dense bands of fibre called the corpus callosum. The outer 3 millimeters of "gray matter" is called the *cerebral cortex*. The outer 3 millimeters of "gray matter" is called the *cerebral cortex*.

The cerebrum is further divided into 4 lobes and their functions are following [1-3]:

1. **Frontal lobe:** It is associated with parts of speech, planning, reasoning, problem-solving and movements.
2. **Parietal lobe:** Help in movements, the perception of stimuli and orientation.
3. **Occipital lobe:** It is related to visual processing.
4. **Temporal lobe:** This region is related to perception and recognition of memory, auditory stimuli, and speech.

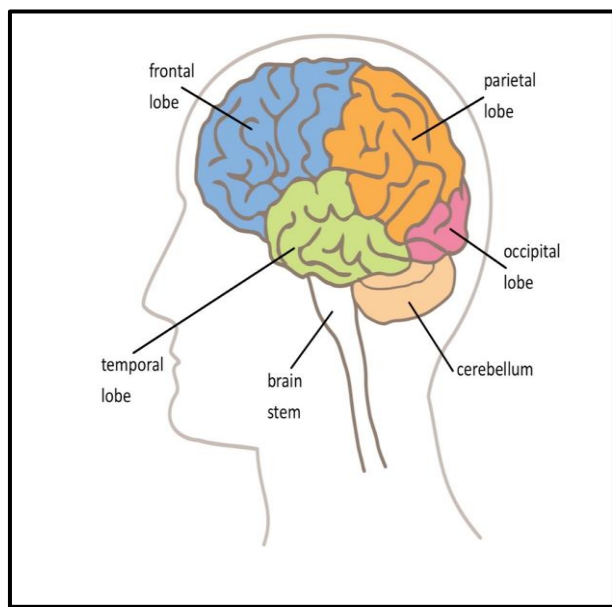


Fig.2. Lobes of brain

The brain consists of two types of tissues:

- a) Grey matter and
 - b) White matter.
1. Grey matter mainly consists of various types of cells, which make up the bulk of the brain.
 2. White matter is primarily composed of axons, which connect various grey matter areas of the brain with each other.

The cerebrum also includes:

1. **Sensory areas:** To receive the messages.
2. **Association areas:** These areas integrate the incoming sensory information. It also forms a connection between sensory and motor areas.
3. **Motor areas:** This area is responsible for the action of the voluntary muscles.

Hypothalamus: The hypothalamus is a small and essential part of the brain, located precisely below the thalamus. It is considered the primary region of the brain [1-3].

Cerebellum: The cerebellum is the second largest part of the brain, located in the posterior portion of the medulla and pons. The cerebellum consists of two hemispheres, the outer grey cortex and the inner white medulla [5].

Medulla Oblongata: The medulla oblongata is a small structure present in the lowest region of the brain [6].

Pons: The pons is the primary structure of the brain stem present between the midbrain and medulla oblongata [6].

Brainstem: The brainstem is a prolongation of the spinal cord and is the eldest part of the brain, taking care of basic functions necessary in all vertebrates [7, 8].

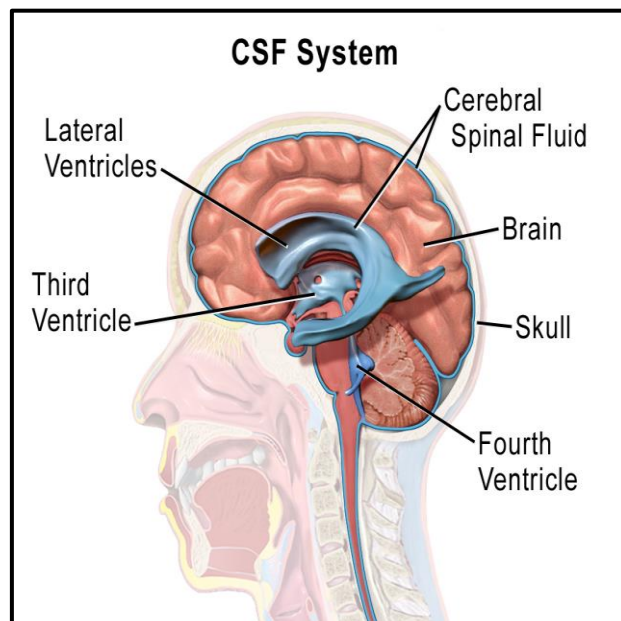


Fig.3. Brain structure

SKULL:

Skull is outer most cover of brain to protect the brain from injury. The skull is formed from 8 bones that fuse together along suture lines. These bones include the frontal, parietal (2), temporal (2), sphenoid, occipital and ethmoid. The face is formed from 14 paired bones including the maxilla, zygoma, nasal, palatine, lacrimal, inferior nasal conchae, mandible, and vomer [7].

VENTRICLES AND CSF:

The brain has hollow fluid-filled cavities called ventricles. Inside the ventricles is a ribbon-like structure called the choroid plexus that makes clear colorless cerebrospinal fluid (CSF). They both connect with the third ventricle through a separate opening called the foramen of Monro. The third ventricle connects with the fourth ventricle through a long narrow tube called the aqueduct of Sylvius. From the fourth ventricle, CSF flows into the subarachnoid space where it bathes and cushions the brain [8].

CRANIAL NERVE:

The brain [7, 8] communicates with the body through the spinal cord and twelve pairs of cranial nerves. Ten of the twelve pairs of cranial nerves that control hearing, eye movement, facial sensations, taste, swallowing and movement of the face, neck, shoulder and tongue muscles originate in the brainstem. The cranial nerves for smell and vision originate in the cerebrum. The number, name and function of cranial nerve below:

Table 1: In short function of brain [9]

Number	Name	Function
I	Olfactory	Smell
II	Optic	Sight
III	Oculomotor	Moves eye, pupil
IV	Trochlear	Moves eye
V	Trigeminal	Face sensation
VI	Abducens	Moves eye
VII	Facial	Moves face, salivate
VIII	Vestibulocochlear	Hearing, balance
IX	Glossopharyngeal	Taste, swallow
X	Vagus	Heart rate, digestion
XI	Accessory	Moves head
XII	Hypoglossal	Moves tongue

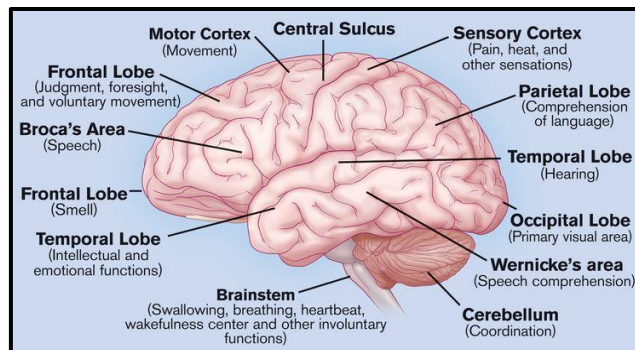


Fig.4: Various parts of Brain

CONCLUSION:

The human brain is show the major role in all function of body. It is very important part of body.

REFERENCES:

1. <https://www.ncbi.nlm.nih.gov/books/NBK234157>
2. https://www.researchgate.net/publication/294430587_Advanced_forward_models_for_EEG_source_imaging
3. <http://www.nature.com/articles/s41467-018-03464-w>
4. Medical review by Deborah waetherspoon health line , 2019
5. J.L. Wilkinson OBE , M.D., FRCS in Neuroanatomy for medical student, 2nd edition 1992 , science direct .
6. brainfacts.org
7. thebrain.mcgill.ca
8. J Anat; Functional anatomy of the human brain ; PMC ; journal of Anatomy; 2005
9. Brain 101; national geographic ; 2009.