Impact Factor: 9.9 ISSN-L: 2544-980X

MRI in the Anatomical Study of Brain Structures Brain in Normal and Tumor Pathology Conditions

R. R.. Navruzov. [1]

Abstract: Theь aim of the study was to determine morphometricметрические показатели глубоких структур головindicators of deep brain structures in children and adultsin the normdepending on the gender and shape of the skull, as well as to study anatomicaland metrical characteristics andtomography of deep brain structures in bulk formations according to MRI data.

Key words: brain, anatomy, magnetic resonance imaging, morphometry, tumor.

ЗаконоThe regularity lies in the fact that the growth and development ofthe child's brain does not occur evenly, but periodically. Based on magnetic resonance imaging data, three periodsof postnatal anatomical developmentof the child's brain can be distinguished: a) the period of completion of myelination of deep brain structures (0-1 years); b) the period of intensive increase in anatomical папараparameters of brain structures; c) the period of gradualincrease in anatomical parameters of brain structures. There were no convincing differences in разthe difference in brain structures in mature individuals. Since the age of 21, morphometric parameters have remained fairly stable and fluctuate depending on the shape of the skull and gender.

2. patterns of individual differences. Up to 1 year, the range of individual variability of brain structures is narrow. By the age of three, it expands, is set at a certain level, lasts up to seven years, and then expands slightly again.яется, устанавливается на определенном уровне, дер- жится до семи лет, а затем снова несколько расширя In adults, a number of structures (pineal gland, pons, cerebellum, quadrupedium, midbrain aqueduct) have almost no individual differences- чий, and their sizes are stable. Other brain structures have a pronounced range of individual differences depending on the shape of the skull (corpus callosum, subcortical nuclei, lateral ventricles of the brain). The general trend of patterns of individual differences in brain structures in all age groups is to increase the width of the range with age.

3. Some differences in the metric parameters of brain structures in children of different sexes were due to the predominance of брахисertain brachs or dolichocephals. Sexual variability of morphometric parameters of the brain as a whole and its parts in mature individualsconsists in the predominance of all sizes in men (on average by 5.0-10.0%), which is associated with large разdimensions and the total area of the brain.

4. Within the framework of the aboveoregularities, there are particular regularities for individual structures. Thus, the corpus callosum is characterized by the appearance разof individual differences in its shape after the first year of life and the age-related alternation of periods of increasing anterior-posterior size and thickness. In mature individualsвозрас, the size of the corpus callosum, especially sagittal and frontal, is larger in dolichocephals. The caudate and lenticular nucleiare characterized by the greatest range of differences, постепена gradual and uniform increase in anatomical parameters in different periods of childhood. In adults, the range of variations inthe morphometric parameters of the basal nuclei is also достаточquite wide; here, the dependence of the sagittal size of the caudate nucleus head on the shape of the skull is revealed: the largest size is determined in dolichocephals, the smallest - in brachycephals. The most intensive increase in the anatomical parameters of the ventricles of the brain occurs in the first year of life, with subsequent unevenness in инthe intensity of the

[1] Bukhara State MedicalInstitute named after Abu Ali Ibn Sino

increase in anatomical parameters in different age groups. In mature individualsвоз, the size of the lateral and iii ventricles was found to depend on the shape of the skull, for example, brachycephals are characterizedby the largest frontaldimensions (width) of the ventricles and the smallest sagittal dimensions (length), and dolichocephals are characterized bythe largest sagittal dimensions (length) oftheventricles and the smallest frontal dimensions (width). In all age groups, there is a clear dependence of the size of a number of structures (pituitary gland, bridge, brain legs, cerebellum) on the shape ofthe head: dolichocephals are characterized by the largest sagittal and smallest frontal sizesв – the smallest sagittal and largest frontal sizes.

LIteration:

1. Akhadov, T. A. Magnetic resonanceimaging in tumors / T. A. Akhadov. - Moscow: Nauka, 2003. - 329 p.
2. Kagan, I. I. and томоStrukova, S. S., Magnetic resonance tomographic anatomy of brain structures in childhood, Moscow: Meditsina Publ., 2009, 194 p. (in Russian).
3. Kurbatov, V. P. Morphometry and топографи- ческиетopographical relationships of brain structures and their components. blood vessels of the human vertebrobasilar basin according данным to magnetic resonance imaging data: АвторефAbstract of the dissertation.... candidate of Medical Sciences. Novosibirsk, 2000, 18 p. (in Russian)
4. Strukova, S. S. Individual differences and agedynamics of anatomometric indicatorsof deep brain structures in childhood accordingto the data of magnetic resonanceimaging: АвторефAbstract of the dissertation.... candidate of Medical Sciences. Orenburg, 2006, 30 p. (in Russian)
5. Trofimova T. N.ана- томия, Nazinkina Yu. V., Ananyeva N. I. Normal radiation analysis of the braina (CT, MRI, ultrasound)мова, Ю. В. Назинкина. - St. Petersburg: SPbMAPO, 2004 – - 51s.