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PLANIMETRIC ANALYSIS OF INDIVIDUAL VARIABILITY AND SEXUAL DIMORPHISM OF MIDDLE-AGED PEOPLE CORPUS CALLOSUM ACCORDING TO MRI IMAGES

The study was performed as a part of research work "Morphological features of human organs and systems on stages of ontogenesis" (state registration number 0114U004149).

ABSTRACT. Background. Issues concerning the corpus callosum structure and role in the implementation of interoperability between the two hemispheres of the human brain are still open for discussion in spite of significant achievements in clinical, morphological and neurophysiological studies. **Objective.** The aim of this study was to obtain a general planimetric characteristics of the corpus callosum median profile of men and women aged from 32 to 56. **Methods.** Two samples from the series of MR-tomograms of mentally healthy men and women heads made in the sagittal plane were used. **Results.** According to the study, the area of the corpus callosum median profile in male group is from 1182,6 to 1668,5 mm² (average – 1315,2±175 mm²). This area is in the grasp of its profile contour, with the minimum length equal to 171,2 mm, and the maximum length equal to 219,6 mm (average – 196,1±13,5 mm). This conditional radius of the corpus callosum circle contour varies from 27,2 to 35,1 mm (average value is 31,2 mm). In female group variations in the area of the median profile of corpus callosum is from 1025,3 to 1754,0 mm² (average - 1310,4±217,0 mm²). The minimum length of its profile contour is 167,7 mm and the maximum one is up to 207,3 mm (on average - 186,3±12,2 mm). Accordingly, its conditional radius is found in the range between 26,7 to 32,8 mm (average – 29,6 mm). **Conclusion.** For the first time, using planimetric method for studying the dimensional characteristics of the corpus callosum on the basis of MRI images samples and using a formal method of topological transformation of its contour shape into isometric circle, we managed to reliably ascertain that the average value of women is somewhat less than that of men.

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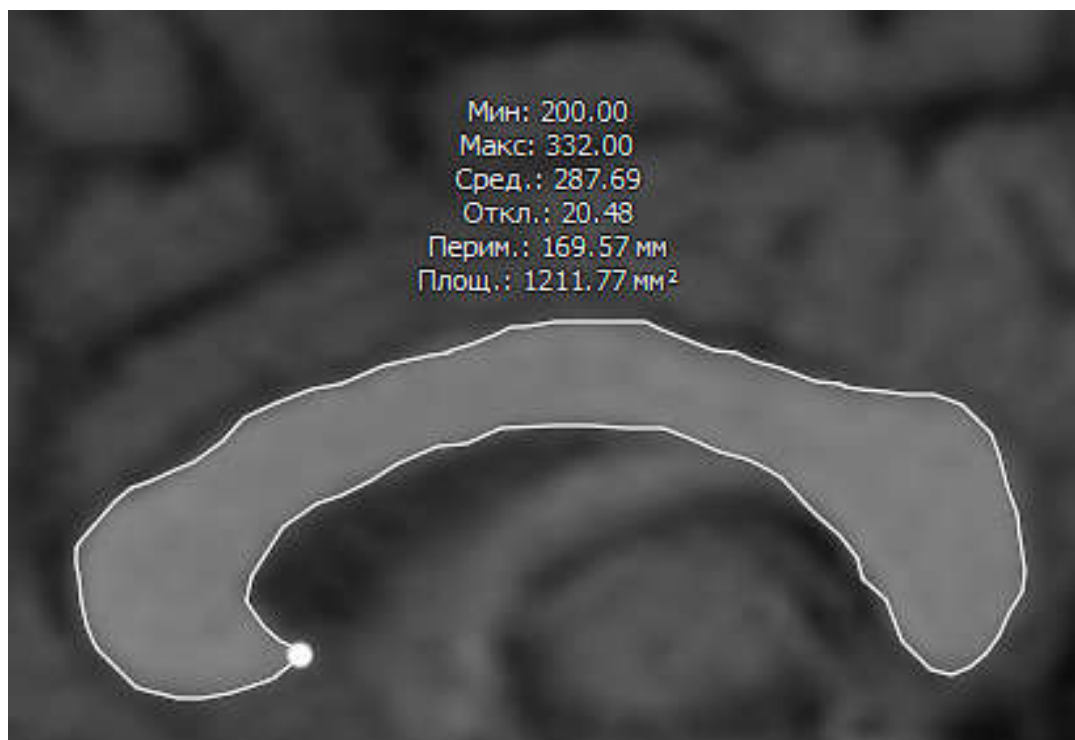


Fig. 1. Selective MRI image of corpus callosum, its perimeter being lined with white line. The line breaks in terminal division of rostrum by the starting point of measurement of the encircled contour length. In the upper middle portion of the figure basic metric parameters of the corpus callosum are seen.

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