

Supplementary Materials for “Hippocampal blood brain barrier permeability is related to the APOE4 mutation status of elderly individuals without dementia”

Supplementary Methods

We used Inbrain (IB, MIDAS Information Technology Co., Ltd.), which is a Korean FDA-cleared software based on the FreeSurfer 6.0 platform enhanced with its own deep learning algorithm.^{1,2} Inbrain IB (<https://www.inbrain.co.kr/index.html>) is similar to the segmentation method of FreeSurfer, which is based on volumetric- and surface-based segmentation and uses a template-driven approach.³ The processing in IB was as follows: analysis failure prediction; intensity normalization; brain extraction; registration into the volume and surface atlas; white matter segmentation; white matter surface smoothing; topology correction; pial and white matter surface optimization; comparisons between output results and the database; and analysis quality management. Finally, the volumes of regional brain structures and of cortical thickness were obtained. A deep learning algorithm was applied to the multiple steps, including analysis failure prediction, brain extraction, white matter segmentation, and analysis quality management to enhance the quality of the segmentation results. The processing time was approximately 4 hours.

References

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3. Lee JY, Oh SW, Chung MS, Park JE, Moon Y, Jeon H, et al. Clinical available software for automatic brain volumetry: comparisons of volume measurements and validation of intermethod reliability. *Korean J Radiol* (in press)