

VOLUMETRY OF INSULAR CORTEX IN DIAGNOSTICS OF ALZHEIMER'S DISEASE

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Aim. In our research, we focused on using MRI for measuring insular operculum and its atrophy progressing with advancing Alzheimer's disease. We assume that this area could be the next potential biomarker for early diagnosis. Our goal was to prove that assessment of volume of insular operculum would be a step in creating a visual scoring system used in diagnosing AD. Secondly, we aimed to differentiate AD from other dementias.

Material and Methods. The analysis contained MRIs of 15 AD patients and 15 control persons. The areas of insular operculum were measured on multiple following slices (between 20 and 40 slices) giving approximate volume. The measurements were followed by statistical analysis.

Results and Discussion. All statistically compared quantities showed significant differences between patients and controls on both sides. The quantities were total volume ($p(R)=0.0003$ and $p(L)=0.0006$), average area ($p(R)=0.000005$ and $p(L)=0.00002$), and volume of only frontal, or parietal part of insula (showing the same trend).

Conclusions. With these results, the volume of insular operculum can now be used as a diagnostic feature for AD. Weaker left-sided significance confirms laterality of the cortical atrophy in AD. The difference in frontal and parietal insular atrophy could serve for differential diagnosis of distinct types of dementia.

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VALVES OF THE SMALL CORONARY VEINS IN PORCINE HEARTS

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Key words: porcine heart, small cardiac veins, valves

Aim. The aim of the study was a morphological demonstration of the existence of valves in the peripheral small intramyocardial and subepicardial veins.

Material and Methods. The study was performed on 20 hearts of normal healthy pigs (6 months, 120 kg) by the use of classical histological methods and India ink injections. Above all, the morphology of the anterior interventricular artery and the middle cardiac vein, and their branches were studied.

Results and Discussion. Regular presence of valves was recorded in the intramyocardial veins with diameter 75–180 μm , in the veins localised just beneath the external myocardial surface (diameter 120–170 μm), as well as in the terminal segments of all ventricular veins (diameter 250 μm), opening into the largest venous stems, e. i. into the anterior interventricular vein, and the middle cardiac vein. In most of the branches of the very rich subepicardial venous network, great number of valves was also recorded regularly.

Conclusions. The results obtained substantially enlarge the recent level of knowledge of the coronary veins anatomy. Contemporarily, they enrich the actual understanding of the hemodynamics of the cardiac venous system, as well as the pathophysiology of the retrograde applications of medicaments via the coronary sinus, very popular and useful in the modern invasive cardiology and in the cardio surgery.

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