

Brain Computed Tomography Perfusion in Patients with Steno-Occlusive Disease of Brachiocephalic Arteries: Assessment of Variability Quantitative Parameters, Generated by Different Software

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Abstract

The aim of our study was evaluation of the variability of quantitative brain CT-perfusion values in group of patients (n = 72) with brachiocephalic artery steno-occlusive disease using different software for data postprocessing. Initial data of CT-perfusion in the total group of patients were subsequently processed, using three different commercial software postprocessing packages (Philips «sensitive», Philips «insensitive» and General Electric). It was revealed that the average absolute value of the perfusion parameter in the general group of patients were significantly different ($p > 0,005$) in case of using different commercial software packages for processing the raw data. But, a comparative correlation analysis of absolute and relative data in general group of patients showed statistically significant high correlation between the data obtained from aforesaid three software packages. As a result, we can conclude that the using of different commercial software packages, based on different versions of mathematical data postprocessing algorithm, provide a significant differences in the resulting of absolute and relative perfusion parameters, and can affect on the accuracy of the cerebral hemodynamics evaluation features in clinical practice. Such differences point to the importance of using not only the identical scanning protocols, but also identical postprocessing software.

Key words: Computed Tomography, Perfusion, Brain, Chronic Ischemia, Atherosclerosis.

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