The Diagnostic Application of Brain Image Processing and Analysis System for Ischemic Stroke

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摘要

Abstract

The diffusion weighted image (DWI) technique is routinely used for diagnosis and treatment of early stroke due to its superior performance, especially when compared with conventional magnetic resonance image (MRI) for detection of acute ischemic stroke. Using DWI examination, this paper proposes an application of image processing in a computer-aided diagnosis system, which can effectively calculate the volume size and provide 3D reconstruction data of a lesion. The potential benefits of using our system include the higher accuracy of acute stroke lesion definition, the reduced time and procedure of calculating the volume, and providing 3D reconstruction image of stroke patients, which can effectively assist doctors in making more accurate diagnoses and treating patients in a more convenient way. Compared with the traditional method, the experimental results have shown the superior performance of this proposed system.