

عنوان مقاله:

Methods to Improve Fiber Reconstruction at DTI-Based Tractography in the Area of Brain Tumor: Case Illustration and Literature Review

محل انتشار:

مجله جراحی مغز و اعصاب ایران، دوره 8، شماره 1 (سال: 1401)

تعداد صفحات اصل مقاله: 9

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خلاصه مقاله:

Background and Aim: DTI-based tractography could help us to visualize the spatial relation of fiber tracts to brain lesions. Several factors may interfere with the procedure of diffusion-based tractography, especially in brain tumors. The aim of the current study is to discuss several solutions to improve the procedure of fiber reconstruction adjacent or inside brain lesions. Illustrative cases are presented as well. **Methods and Materials/Patients:** The paper is a narrative review of methods that could improve DTI based fiber reconstruction in the area of brain tumors. To provide up-to-date information, we briefly reviewed related articles extracted from Google Scholar, Medline, and PubMed. **Results:** We proposed five techniques to improve fiber reconstruction. Technique ۱ is the very low FA application. Technique ۲ includes Resampling techniques like q-ball and high angular resolution diffusion imaging (HARDI). Technique ۳ is the reconstruction of fiber tracts by defining separated ROIs (region of interest). Technique ۴ explains the selection of ROIs according to fMRI (functional Magnetic Resonance Imaging) since the anatomical configuration is distorted by neoplasm. Technique ۵ consists of using unprocessed images for preoperative planning and correlations with the clinical situation. **Conclusion:** DTI tractography is highly sensitive to noise and artifacts. The application of tractography techniques could improve fiber depiction in the area of brain tumor and edema.

کلمات کلیدی:

Neuroimaging, Diffusion Tensor Imaging, Brain Mapping, Brain Neoplasm

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