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Poster Presentation

Evaluation of the Voxel Based Morphometry in Quantitative Analysis of Brain MRI Images

Shahrokh Nasser¹, Mehdi Momenzad^{1,2}, Hossein Akbari-Lalimi^{1*}

¹Medical Physics Department, Mashhad University of Medical Sciences, Mashhad, Iran

²Nuclear Medicine Research Center, Mashhad University of Medical Sciences, Mashhad, Iran

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Abstract

Introduction: Voxel based morphometry is a type of statistical parametric mapping that can be used to investigate the effect of diseases such as epilepsy, Alzheimer's disease and Parkinson's disease or other agent such as skills on brain structure (white matter, gray matter and cerebrospinal fluid). The aim of this study is evaluate the effectiveness of this method in detection of differences of the two groups. **Materials and Methods:** In this study the statistical distribution of gray matter with and without applying the modulation compared. Twenty healthy anatomical model images segmented, then modulated and unmodulated gray matter extracted and it evaluated which gray matter mode have less dispersion. Also two groups with controlled differences in a specific region created to evaluate the efficiency of voxel based morphometry against region of interest analysis. **Results:** Explore in modulation effect led that use of unmodulated image, statistically can reveal smaller changes in gray matter of whole brain in same sample conditions. In study of local changes in desired region that created in this study, by minimizing the region size the significant difference between the two groups can reveal. This difference can show with voxel based morphometry with different methods. **Conclusion:** voxel-based morphology is appropriate in determining brain differences which are not detect visually and hardly detect by methods such as region of interest.

Keywords: Voxel based morphometry, MRI, Statistical parametric mapping, Region of interest

***Corresponding Author:** Hossein Akbari-Lalimi

E-mail: h_akbari_l@yahoo.com