Clinical Radiology Software for MR Urography

Technology description

Tech Summary:A post-processing MR image analysis software for clinical MR urography that analyzes both anatomical and functional parameters of the kidney.

Background
This is the current preferred method for children. The functional analysis of the MR urography scan requires external post- processing image analysis software. This software has three major limitations in pediatric radiology: complexity, a need for specialized personnel to run the software and the length of time needed to carry out the analyses.

The ideal functional MR urography analysis software would be simple, user-friendly, fast and easily operated by the average radiologist. This invention provides an optimized functional analysis software that can be used in pediatric and adult patients.

Technology Description:Provides an interactive 3-D image analysis tool for MR urography. Uses computational analysis to quantitatively analyze MRI kidney data to assess functional, physiologicaland anatomical parameters. These parameters include renal transit time, urinary excretion, renal blood flow, glomerular filtration rate, plasma flow or volume etc. The parameters can be analyzed and visualized in various intuitive ways to help in diagnosis.The software uses a cluster-based method to analyze and segment the 4-D MRI kidney data on a pixel-by-pixel basis.

The software automatically groups dynamic MRI kidney data into clusters that contain pixels with similar functional activities. The software then uses these clusters, anatomical knowledge and logistic model to automatically segment the kidney for further evaluation.

Advantages

Imaging the urinary tract in children with MR urography has many advantages. This imaging can be done with one exam and without using ionizing radiation.

Institution

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