



## Optimization of MRI scan protocol and functional analysis of renal function on 3T high-field MRI

Małgorzata Grzywińska, Institute of Experimental Physics, Division of Applied

Supervisor: dr hab. Jerzy Kwela, prof. UG

**Objective:** The aim of the study was to optimize the methodology of renal function by 3T magnetic resonance with using the *Chop fMRU* program.

**Methodology:** Optimization of MRI scan protocol was made for 36 patients. Then the protocol was tested on a group of 20 patients (aged between 2 months to 17 years old) with a diagnosis of megaureter. Images were obtained by using the *eTHRIVE* dynamic sequence after injection of the gadolinium-based contrast agent. Functional analysis of kidneys was performed in the *Chop fMRU* program. Analysis of signal intensity curves as a function of time from the *Chop fMRU* program has been compiled with the curves obtained in the Philips IntellinSpace Portal. Results of renal function were compared with renal scintigraphy data.

**Results:** A protocol was developed that it would allow to give optimal analysis of kidney function while maintaining high image quality. Optimization of the study to the *Chop fMRU* program allowed the results of analysis of parameters characteristic for kidney function. These results are compiled with results from renal scintigraphy.

**Conclusions:** The introduced changes allow assessment and analysis of glomerular perfusion and glomerular perfusion, visualization of renal excretion and urinary output.

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