

Volumetric magnetic resonance imaging of gastrocnemius muscle in a patient with facioscapulohumeral dystrophy

Gościk E.^{1*}, Kułak P.¹, Sienkiewicz D.², Kułak W.², Okurowska-Zawada B.²

¹ Department of Pediatric Radiology, Medical University of Białystok, Poland

² Department of Pediatric Rehabilitation, Medical University of Białystok, Poland

ABSTRACT

Introduction: Magnetic resonance imaging (MRI) is a nonradiographic, non-invasive method to visualize and quantify muscle cross-sectional areas and volumes.

Purpose: To evaluate a gastrocnemius muscle volume in a 15-year-old male with facioscapulohumeral dystrophy (FSHD) using MRI.

Material and methods: The patient with FSHD was given subcutaneously recombinant human granulocyte colony-stimulating factor - filgrastim (5µg/kg body/day) for 5 consecutive days during the first, second, and third months. The Siemens Magnetom 0.3T MRI scanner was used to acquire the images of the right calf of the patient. The analysis of MR images used advanced biomedical

imaging software-Analyze 10 Biomedical Imaging Software.

Results: The patient with FSHD after 6 month of the treatment compared with baseline had greater volume of the gastrocnemius muscle volume of the right calf. Muscle volume increased from 60,567.5 mm³ to 70,795.6 mm³. The increased of muscle volume of this patient correlated with the improvements of muscle strength and EMG.

Conclusion: MR imaging can provide quantitative, reproducible volumetric measures of muscles in the patients with FSHD.

Key words: Magnetic resonance imaging, gastrocnemius volume, facioscapulohumeral
