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Magnetic Resonance Imaging in late-onset Pompe disease and Post-Processing Analysis of Flexor Muscle

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Late onset Pompe disease (LOPD) is a rare multisystem genetic muscle disorder that characterized by a deficiency of the lysosomal enzyme acid alpha-glucosidase and cytoplasmic glycogen accumulation causing damage that leads to muscle weakness. This study aim is to evaluate the muscle MRI pattern of twelve adults with late onset Pompe disease and twelve sex- and age-matched healthy controls (Age range 19-59) patients were studied for feature extraction which will be used to identify and classify functioning and non-functioning muscles. We performed and quantified muscle MRI T2 relaxation data of flexor muscles in the lower limbs, and all data analyzed using repeated measure ANOVA to compare within related groups of the independent variable time (Base, 30M, 24H). According to our results, the significantly lower T2 value in the biceps femoris (BF) muscle, Semitendinosus (ST) muscle, semimembranosus (SM) and in the ST muscle of controls was observed (base=43ms, 30min=48ms, 24h=43ms; $P < 0.05$). In patients, we detected significantly higher T2 value in the biceps femoris (BF) muscle, Semitendinosus (ST) muscle, semimembranosus (SM) muscle evolve over time (base=129ms, 30min=132ms, 24h=128ms; $P < 0.05$) as will as we observed a significant enlargement in the area size of the Semitendinosus (ST) muscle compared to the controls, but neither SM muscle nor BF muscle showed significant change in the area size. As a conclusion, it is suggested that in Pompe patients the ST muscle is the most effected muscle among the flexor muscles in the lower limb, compared to the BF and SM muscle which did not shown significant change in the area size, that means that Pompe disease can change the muscle cells structure and cause the muscle to deformation of the original shape and that leads to muscle weakness.

Biography

Dr. Ala Khasawneh is a Jordanian PhD student born in 1987. He is holding a specialist diploma in General Medicine (M.D) and was awarded a qualification of physician and the title of Doctor of Medicine by The National Pirogov Memorial Medical University, Vinnitsa - Ukraine. He worked as a doctor (GP) in Princess Basma hospital - Jordan. Currently he is a PhD fellow in diagnostic medical imaging in Pecs - Hungary. He is thinking all of the time to creates new pathways for improving healthcare. This approach is responsive to all stakeholders and has a different way of focusing and thinking and find a fast solution for hard problems. within a short time, he will post a publication about Pompe disease and give some lectures in terms of his research.

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