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Poster Abstract: Clinical

A Comparison of Gait Patterns between Late-Onset Pompe Disease and Age-Matched Healthy Individuals: Does Late-Onset Pompe Disease have a Typical Gait Pattern?

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BACKGROUND

Currently, there is little or no previous research into the exact gait patterns (kinematics) of late-onset Pompe disease (LOPD). Several authors have documented their clinical observations, but there are no formal recordings or descriptions based on kinematic data of the typical LOPD gait pattern.

MATERIALS AND METHODS

This study is a non-interventional correlation study. Two groups ($n=40$), consisting of 20 LOPD patients and 20 healthy age-matched (HAM), individuals will have their gait patterns assessed by instrumented gait analysis (Qualisys OQUS). The aim of the study is to identify the differences in gait between LOPD patients and HAM individuals.

The LOPD group will be recruited from the Mark Holland metabolic Unit, Salford Royal NHS Foundation Trust. The HAM participants will be recruited from across the normal population. Participants included in the study will have a genetic diagnosis of LOPD and will be able to walk unaided for a distance of 50–550 m in a 6-minute walk test (6MWT). All participants who have a diagnosis of a significant musculoskeletal or neuromuscular condition will be excluded from the study.

Both groups will receive instrumented gait analysis at the University of Salford Gait Laboratory. The participants will then be asked to change into their shorts and a comfortable T-shirt. Retroreflective markers will be attached to bony landmarks using hypoallergenic adhesive tape at the ankle (medial and lateral malleolus), knee (lateral and medial femoral epicondyle), thigh (greater trochanter), and pelvis (anterior superior iliac spine, posterior superior iliac spine, iliac crest), with rigid cluster plates on the thigh, leg, and pelvis. All participants will walk a distance of 10 m in a straight line, for 10 successful walks. Adequate rest periods will be encouraged between each recorded walk. During the instrumented gait analysis, both groups will be monitored for fatigue or breathlessness using the Borg scale of exertion.

RESULTS

Statistical analysis of the kinematic data will look for differences in gait patterns within the LOPD group, which will be correlated with the individual's 6MWT result. The study will also look for statistical differences in gait patterns between LOPD patients and HAM individuals.

CONCLUSIONS

An improved understanding of gait patterns in LOPD will help to aid and support the development of physiotherapy treatments, gait aids, braces, standards of care, and ultimately improve a greater degree of patient independence and quality of life.

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