19th Asian-Oceanian Myology Center Meeting
AOMC
BUSAN

Myotubular & Centronuclear Myopathy Patient Registry: Accelerating the pace of research and treatment

Joanne Bullivant[1], Ben Porter[1], Lindsay Murphy[1], Lee Render[2], Matthew I Bellgard[3], Registry Steering Committee members[4], Ana Buj-Bello[5], James J. Dowling[6], Chiara Marini-Bettolo[1,7]

[1] John Walton Muscular Dystrophy Research Centre, Translational & Clinical Research Institute, Newcastle University & Newcastle Hospitals NHS Foundation Trust, UK
[2] Australian National Phenome Centre, Murdoch University, Australia
[3] Office of eResearch, Queensland University of Technology, Australia
[4] Registry Steering Committee; mtmcnmregistry.org/steering-committee
[5] Genethon, Université Paris-Saclay, Univ Evry, Inserm, Integrare research unit UMR_S951, France
[6] Division of Neurology, Hospital for Sick Children, Toronto Ontario, Canada.
[7] Newcastle Hospitals NHS Foundation Trust, Newcastle upon Tyne, UK

The John Walton Muscular Dystrophy Research Centre
NHS The Newcastle upon Tyne Hospitals NHS Foundation Trust
Newcastle University

Introduction

The Myotubular and Centronuclear Myopathy Patient Registry

- Myotubular and other centronuclear myopathies are congenital neuromuscular conditions characterised by central nuclei on muscle biopsy. The presumably most common form is the ultra-rare X-linked myotubular myopathy (XLMTM) with an estimated incidence of 1 in 50,000 male births. Mortality rates are not reliably ascertained but are believed to be 25-50% in the first year of life and ≈10% thereafter[1,2].

- Founded in 2013, the Myotubular and Centronuclear Myopathy Patient Registry is a disease-specific, longitudinal, open-ended database collecting demographic, genetic and clinical data on affected individuals and female carriers of XLMTM from all over the world.

- Subject to ethical and steering committee approval, researchers or companies can:
  - Request data reports to answer research questions.
  - Ask the registry to inform eligible individuals about research studies and clinical trials.

The John Walton Muscular Dystrophy Research Centre | Newcastle University | The Newcastle upon Tyne Hospitals NHS Foundation Trust

References
1. Amburgey K, Tsuchiya E, de Chastonay S, Glueck M, Alverez R, Nguyen CT, Rutkowski A, Hornyak J, Beggs AH, Dowling JJ. A natural history study of X-linked myotubular myopathy. *Neurology*. 2017 Sep 26;89(13):1355-1364.
2. Beggs AH, Byrne BJ, De Chastonay S, Haselkorn T, Hughes I, James ES, Kuntz NL, Simon J, Swanson LC, Yang ML, Yu ZF, Yum SW, Prasad S. A multicenter, retrospective medical record review of X-linked myotubular myopathy: The recensus study. *Muscle Nerve*. 2018 Apr;57(4):550-560.

Methods

The Myotubular and Centronuclear Myopathy Patient Registry

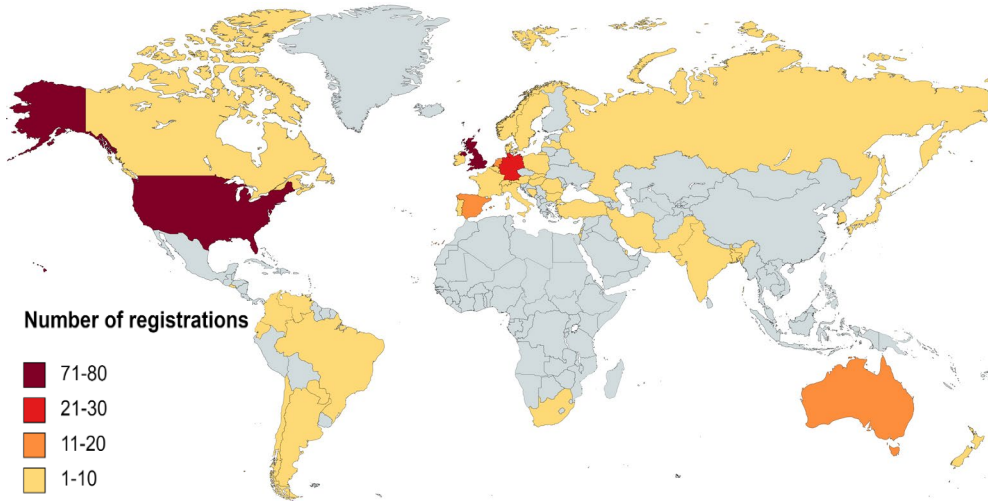
- Participants consent and provide self-reported clinical and genetic data through a secure online portal, and are reminded to update their data annually.
- Registrations are verified by registry staff following review of genetic or muscle biopsy report, and follow-up with clinician if necessary.
- Accepting registrations of:
  - Children or adults diagnosed with MTM/CNM.
  - Carrier females of XLMTM.
  - Deceased individuals who had a confirmed diagnosis.

- Genetic & biopsy information
- Clinical care
- Best and current motor function
- Wheelchair use
- Eye movement
- Scoliosis surgery
- Ventilation use
- Antibiotics
- Feeding tube use
- Heart function
- Family information
- Other registry participation

The John Walton Muscular Dystrophy Research Centre · Newcastle University · The Newcastle upon Tyne Hospitals NHS Foundation Trust

Results

- 364 participants:
  - 330 living, 34 deceased
  - 235 male, 129 female
  - 183 living adults, 147 living children
  - 46 countries



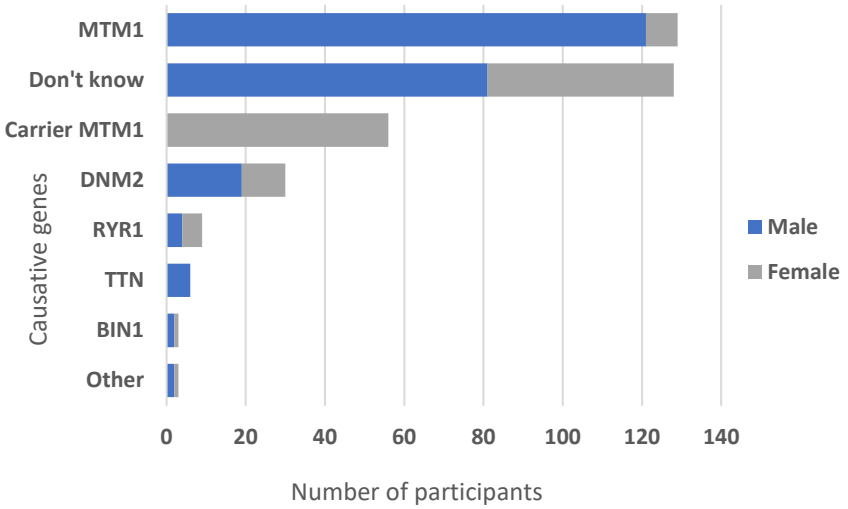
Use case examples

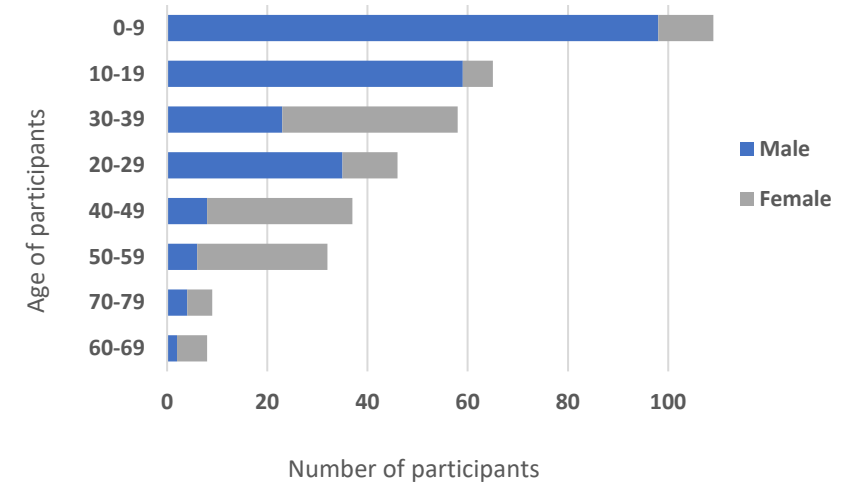
Data Reports

- Incidence and prevalence of CNM
- Motor function, ambulation status and ventilation usage in XLMTM
- Causative genes in CNM
- Patient numbers against all data points, split by genetic confirmation
- Patient numbers against clinical trial eligibility criteria

Research Recruitment

- Experiences of conception, pregnancy and postpartum
- Phase 1/2 clinical trial recruitment
- Drug repurposing
- Muscular Symptoms of female XLMTM carriers
- Assessing fatigue in NMD
- Understanding dysphagia in NMD
- Wearable devices and outcome measures





Conclusion and discussion

The Myotubular and Centronuclear Myopathy Patient Registry

- The Myotubular and Centronuclear Myopathy Patient Registry facilitates translational research by identifying research participants and providing important real world data.
- It contains important information on a diverse and growing international cohort of individuals affected by this group of rare and ultra-rare conditions. It aims to support all areas of translational research including epidemiology, clinical trial planning and recruitment, outcome measures, standards of care, and real-world data for regulatory decision-making.
- Led by an academic group and an international steering committee, and funded by patient organisations and industry, the Registry showcases a collaborative community effort. Registration is available in multiple languages.
- Since 2014 it has provided data or recruitment support for multiple research studies. New grant funding from April 2021 to April 2023 has galvanised the project and enables exciting expansion and development, including the addition of clinician-reported data and patient-reported outcome measures.

www.mtmcnmregistry.org

The John Walton Muscular Dystrophy Research Centre · Newcastle University · The Newcastle upon Tyne Hospitals NHS Foundation Trust

Funders

myotubular trust FINDING STRENGTH · Muscular Dystrophy UK Fighting muscle-wasting conditions · astellas GENE THERAPIES