Title: Phenotypic Characteristics of Phelan-McDermid Syndrome from the Phelan-McDermid Syndrome International Registry

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Introduction: Phelan-McDermid Syndrome (PMS) is a neurogenic condition that affects individuals based on deletions or mutation in the distal end of the long arm of chromosome 22. A few systematic studies of the cognitive and behavioral phenotype of PMS that have been conducted (Soorya et al., 2013; Zwanenburg, Ruiter, van den Heuvel, Flapper, & Van Ravenswaaij-Arts, 2016), along with several reports that include retrospective medical records reviews and parent report (Sarasua et al., 2014; Sarasua et al., 2011) indicate that intellectual disability ID with associated minimally verbal status is very frequently observed in this population, along with delayed developmental milestones in across all domains. Medical features, including epilepsy and gastrointestinal problems, have been reported frequently as well (Kolevzon et al., 2014). Data from a large number of individuals with PMS are now available through the Phelan-McDermid Syndrome Foundation’s initiation of an online international registry. The current study uses these data to obtain prevalence rates for cognitive, language, and medical impairments.

Method: Access was requested and granted for aggregate data available in the Phelan-McDermid International Registry (see: https://pmsiregistry.patientcrossroads.org/). The current study uses data from clinical questionnaires, including a developmental questionnaire in the registry (N=441; mean age=12.72 years, range=8-20 years). Answers to caregiver questions were used to describe behavioral and medical phenotypic characteristics in aggregate. A subset of participants have agreed to participate in the Phelan-McDermid Data Network, which includes the collection of electronic health records and clinical notes.

Results: In response to a question about communicative ability (for children aged 2+ years), 23% of 441 individuals indicated that their child communicates verbally, and 9% were reported to understand complex commands (i.e. more than 2-step commands). Independent toileting was reported to be achieved consistently in 13%. Parents reported that 84% of 403 individuals walked independently, with 30% of the sample reported to achieve independent walking by 18 months. Responses to questions regarding medical problems, including seizures, indicated that 29% have experienced non-febrile seizures, including absence, complex partial, simple partial, tonic-clonic and “other” seizure types. Details of response data to these and other questions regarding medical symptoms will be provided.

Discussion: Until results become available from systematic, clinic-based natural history studies of Phelan-McDermid Syndrome, results from registry data such as these represent our current understanding of the Phelan-McDermid Syndrome phenotype. These results confirm description in the literature of pervasive motor, communication, and daily living skill impairments, and create the beginning profile for the development of severity measures to be used in treatment trials that are underway for this syndrome.

References/Citations: