Insights into Sanfilippo syndrome provided by the ConnectMPS Worldwide Online Registry in collaboration with BioMarin and Invitae

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Background

- Sanfilippo syndrome (Mucopolysaccharidosis type III) is a group of four lysosomal storage diseases (types A, B, C, and D) caused by different enzyme deficiencies that lead to accumulation of heparan sulfate in the central nervous system and visceral body tissues.
- Unlike other MPS disorders, Sanfilippo syndrome is characterized chiefly by neurological symptoms starting with developmental delay, behavioral problems, and progressive neurodegeneration.
- The rarity of Sanfilippo syndrome (~1 in every 70,000 births) presents a major impediment to collecting comprehensive information about how it presents and affects patient health.
- To better understand how Sanfilippo syndrome affects patients and their families we extended ConnectMPS, an online patient registry represented by 27 advocacy organizations, to collect additional data regarding Sanfilippo syndrome.

Methods

- Survey sections:
  - Demographic, disease history, and treatment data: 17 questions about disease presentation and progression (presented here)
  - Sanfilippo Behavioral Rating Scale (SBR-R): an inventory of questions designed to query specific characteristics of the disorder
  - Lab and other diagnostic data: upload de-identified lab results or enter them into a form
- Surveys translated into English, German, Mandarin, Portuguese and Spanish
- Survey went live in January 2017
- Respondents are from 27 countries
- Site URL: connectmps.org

Demographic data (160 patients)

- Sanfilippo subtype representation
- Patient age range = 0-53 yrs, mean = 14 yrs
- Clinical trial participation
- 72% Ever, 28% Current

Results

- Initial symptom
  - Speech/language problem
  - Failure to achieve developmental milestones
  - Behavior problems
  - Sleep problems
  - Loss of development milestones
  - Other
  - None of the above

- Neurological symptoms
  - Speech/language problems
  - Intellectual disability
  - Behavior problems
  - Sleep problems
  - Coordination
  - Other

- Disease presentation with speech/language problems is pervasive across Sanfilippo subtypes
- Behavior problems appear earlier in Sanfilippo C than in other subtypes
- Presenting symptoms are similar to those described previously

Conclusions

- The ConnectMPS registry is a rich source of data regarding multiple aspects of Sanfilippo syndrome.
- Sanfilippo A and B present and progress in similar fashion, while Sanfilippo C and D show some key differences (age of onset, age of diagnosis, initial and most prevalent neurological symptoms).
- Significant delays in diagnosis continue to exist across subtypes.
- Registry data agree with published reports, supporting the validity of the reporting method and generalizable nature of the data.

References

- N = 160

Milestone acquisition and loss

- Has the participant achieved the following developmental milestones?

Next steps

- ConnectMPS registry translation to additional languages for increased global participation
- Public availability of registry data

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