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Response to: Investigating the neurobehavioral symptoms of neuronopathic Hunter syndrome

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We appreciate the opportunity to respond to the points Mr. Grant raised in his Letter to the Editor [1].

Neurobehavioral symptoms in neuronopathic Hunter syndrome are complex, difficult to manage, and incompletely understood. Our study found that some symptoms were vulnerable to misinterpretation as aggressive or defiant [2]; Mr. Grant asked how intentional aggression was distinguished from another explanation (e.g., social overture) [1]. His question highlights the critical importance of a collaborative, open-minded and trusting relationship between clinicians and/or researchers and affected families. Family perspective is crucial for understanding patient needs and functioning. To this point, our findings of misattribution were reported by caregivers, rather than solely determined by the study team (e.g., Fig. 1 legend [2]); caregivers may be the truest experts for decoding the children's behaviors.

We agree with Mr. Grant's assertion that the association between pain and neurobehavioral symptoms warrants further study [1]. Our hope is that the neurobehavioral measurement tool built from this study will quantify neurobehavioral change and clarify its relationship with somatic manifestations. At the individual level, pain is an important consideration for differentials and symptom management [3].

Mr. Grant notes that we describe the impact of neurobehavioral symptoms on parents, but not siblings [1]. We selected the term “caregiver” to be inclusive of all “care-giving” individuals, including not only parents but also other family members or non-family individuals, as has been previously summarized [4,5]. Caregivers who responded to our enrollment announcements were all parents; thus first-hand accounts of siblings were not obtainable. We agree that sibling-specific impact needs greater understanding, aligned with Mr. Grant's previous work [6], and increased attention to caregiver burden in mucopolysaccharidosis [3,7–9].

In summary, we believe our study and Mr. Grant's letter raise compatible issues that warrant continued investigation for this complex disorder, to optimize patient management and ultimately relieve multifaceted, multi-individual suffering.

Disclosures

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