Suggested Follow-up for Mucopolysaccharidosis type 1 (MPS I)
Decreased or absent Alpha-L-iduronidase (IDUA)

Definition: Mucopolysaccharidosis Type 1 (MPS I), is also historically and collectively known as Hurler syndrome, Hurler-Scheie syndrome, and Scheie syndrome. There is wide variability in severity and age of onset.

Condition Description:

MPS I is an autosomal recessive lysosomal storage disorder (LSD) caused by pathogenic variants in the *IDUA* gene leading to deficient alpha-L-iduronidase activity. It has an estimated incidence of less than 1 in 100,000 live births. This deficiency leads to the accumulation of glycosaminoglycans (also known as GAGs or mucopolysaccharides) in the lysosomes, resulting in cellular dysfunction.

YOU SHOULD TAKE THE FOLLOWING ACTIONS:

- Contact family to inform them of the newborn screening results and ascertain clinical status.
- Provide the family with basic information about MPS I. The attached handout "*When baby has an abnormal test for MPS I*" may be used for this general purpose.
- Take a family history.
- Consult with a pediatric genetic or metabolic specialist.
- **Within one week**: Evaluate the newborn with attention to the presence of umbilical hernia and hepatosplenomegaly (though the newborn exam is usually normal).
- Report findings to state newborn screening program.

Diagnostic Evaluation:

Confirmatory alpha-L-iduronidase (IDUA) enzyme assay in leukocytes, urine, or blood glycosaminoglycans (GAGs). Patients with low alpha-L-iduronidase enzyme activity and elevated glycosaminoglycans in urine or blood will have *IDUA* gene analysis.

Clinical Considerations:

The clinical presentation and severity of MPS I ranges from severe to attenuated. In general, clinical features may include coarse facies, hepatosplenomegaly, progressive dysostosis multiplex, cardiac valvular disease, umbilical hernia, corneal clouding, hearing loss, and developmental delay.

Treatment options include hematopoietic stem cell transplantation, enzyme replacement therapy (ERT), and emerging therapies. Ongoing multi-specialty care is necessary. ERT administration should only be given under the guidance of a specialist with expertise in treatment of lysosomal storage disorders.

Internet Resource:

https://ghr.nlm.nih.gov/condition/mucopolysaccharidosis-type-i