American College of Medical Genetics ACT SHEET

Newborn Screening ACT Sheet [FS]

Sickle Cell Anemia (HbSS Disease or HbS/Beta Zero Thalassemia)

Differential Diagnosis: Homozygous sickle cell disease (Hb SS), sickle beta-zero thalassemia, or sickle hereditary persistence of fetal hemoglobin (S-HPFH).

Condition Description: A red blood cell disorder characterized by presence of fetal hemoglobin (F) and hemoglobin S in the absence of hemoglobin A. The hemoglobins are listed in order of the amount of hemoglobin present (F>S). This result is different from FAS which is consistent with sickle carrier.

YOU SHOULD TAKE THE FOLLOWING ACTIONS:

- Contact the family to inform them of the screening result.
- Consult a specialist in hemoglobin disorders; refer if needed.
- Evaluate infant and assess for splenomegaly; do complete blood count (CBC) with mean corpuscular volume (MCV), and reticulocyte count.
- Order hemoglobin profile analysis (usually performed by electrophoresis).
- Initiate timely confirmatory/diagnostic testing as recommended by consultant.
- Initiate daily penicillin VK (125mg po bid) prophylaxis and other treatment as recommended by the consultant.
- Educate parents/caregivers regarding the risk of sepsis, the need for urgent evaluation if fever of ≥ 38.5° C (101° F) or signs and symptoms of splenic sequestration.

Diagnostic Evaluation: CBC, MCV, and reticulocyte count. Hemoglobin separation by electrophoresis, isoelectric focusing or high performance liquid chromatography (HPLC) shows FS pattern. DNA studies may be used to confirm genotype. Sickledex is not appropriate for confirmation of diagnosis in infants.

Clinical Considerations: Newborn infants are usually well. Hemolytic anemia and vaso-occlusive complications develop during infancy or early childhood. Complications include life-threatening infection, splenic sequestration, pneumonia, acute chest syndrome, pain episodes, aplastic crisis, dactylitis, priapism, and stroke. Comprehensive care including family education, immunizations, prophylactic penicillin, and prompt treatment of acute illness reduces morbidity and mortality. S-HPFH is typically benign.

Additional Information:

Grady Comprehensive Sickle Cell Center

Management and Therapy of Sickle Cell Disease

Sickle Cell Disease in Children and Adolescents: Diagnosis, Guidelines for Comprehensive Care, and Protocols for

Management of Acute and Chronic Complications

American Academy of Pediatrics

Sickle Cell Disease Association of America

Referral (local, state, regional and national):

Testing

Clinical Services

Comprehensive Sickle Cell Center Directory

Sickle Cell Information Center

Find Genetic Services

Disclaimer: This guideline is designed primarily as an educational resource for clinicians to help them provide quality medical care. It should not be considered inclusive of all proper procedures and tests or exclusive of other procedures and tests that are reasonably directed to obtaining the same results. Adherence to this guideline does not necessarily ensure a successful medical outcome. In determining the propriety of any specific procedure or test, the clinician should apply his or her own professional judgment to the specific clinical circumstances presented by the individual patient or specimen. Clinicians are encouraged to document the reasons for the use of a particular procedure or test, whether or not it is in conformance with this guideline. Clinicians also are advised to take notice of the date this guideline was adopted, and to consider other medical and scientific information that become available after that date.



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LOCAL RESOURCES: Insert State newborn screening program web site links

State Resource site (insert state newborn screening program website information)

Name

Quest To Cure Sickle Cell Foundation | Office for Children with Special Health Care Needs | Office of Newborn Screening

URL

www.questtocure.org | www.azdhs.gov/phs/owch/ocshcn | www.aznewborn.com

Comments

Quest to Cure Sickle Cell Foundation: (602) 200-0215

Office for Children With Special Health Care Needs: (602) 542-1860

Office of Newborn Screening: (602) 364-1409

Local Resource Site (insert local and regional newborn screening website information)

Name

Introduction to Sickle Cell Trait - Physician Training Module

URL

www.coloradosicklecellcenter.org/SickleCellTraitCourse/module 1/index.htm

Comments

CONTRACTED SPECIALISTS

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APPENDIX: Resources with Full URL Addresses

Additional Information:

Grady Comprehensive Sickle Cell Center

 $\frac{\text{http://www.scinfo.org/index.php?option=com}}{\text{content&view=article&id=218:hemoglobins-what-the-results-mean&catid=11&Itemid=21}}$

Management and Therapy of Sickle Cell Disease

http://www.nhlbi.nih.gov/health/prof/blood/sickle/index.htm

Sickle Cell Disease in Children and Adolescents: Diagnosis, Guidelines for Comprehensive Care, and Protocols for Management of Acute and Chronic Complications

http://www.dshs.state.tx.us/newborn/pdf/sedona02.pdf

American Academy of Pediatrics

http://pediatrics.aappublications.org/cgi/content/full/109/3/526

Sickle Cell Disease Association of America

http://www.sicklecelldisease.org/

Referral (local, state, regional and national):

Testing

http://www.ncbi.nlm.nih.gov/sites/GeneTests/lab/clinical disease id/2028?db=genetests&country=United%20States

Clinical Services

Comprehensive Sickle Cell Center Directory

http://www.scinfo.org/index.php?option=com_content&view=article&id=197&Itemid=34

Sickle Cell Information Center

http://www.scinfo.org/

Find Genetic Services

http://www.acmg.net/GIS/Disclaimer.aspx

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