GUNDERSEN/LUTHERAN ULTRASOUND DEPARTMENT POLICY AND PROCEDURE MANUAL

SUBJECT: Transcranial Doppler in Children with Sickle Cell Disease
SECTION: Vascular Ultrasound
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APPROVED BY: _____
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Purpose: Transcranial Doppler imaging is being used in the evaluation of children with sickle cell disease as a method to identify those children at risk for stroke.

Exam Protocol: Bilaterally the following vessels in the Circle of Willis are evaluated with color and spectral Doppler (do NOT angle correct) and the highest TAMAX is recorded for each vessel: Terminal ICA, MCA/ACA bifurcation, MCA, and ACA.

Imaging Protocol: (Do NOT angle correct)

- RT terminal ICA with color and spectral Doppler with TAMAX measured
- RT MCA/ACA bifurcation with color and spectral Doppler with TAMAX measured – evaluate each vessel proximally at the level they bifurcate from the terminal ICA
- RT MCA with color and spectral Doppler with TAMAX measured
- RT ACA with color and spectral Doppler with TAMAX measured
- LT terminal ICA with color and spectral Doppler with TAMAX measured
- LT MCA/ACA bifurcation with color and spectral Doppler with TAMAX measured – evaluate each vessel proximally at the level they bifurcate from the terminal ICA
- LT MCA with color and spectral Doppler with TAMAX measured
- LT ACA with color and spectral Doppler with TAMAX measured

STOP Criteria

- TAMAX: < 170 cm/s: Normal
- TAMAX: 170 - 199 cm/s: Conditional
- TAMAX: > 200 cm/s: At risk

Reference

Malouf, Abe J. Jr., Hamrick-Turner, Jennifer E., et al: I*mplementation of the STOP Protocol for Stroke Prevention in Sickle Cell Anemia by Using Duplex Power Doppler Imaging*; Pediatric Imaging, volume 219, number 2, 359-365.

Gundersen Health System Department of Diagnostic Ultrasound

Transcranial Doppler Worksheet in the Setting of Sickle Cell Disease

Patient Name: _____ **Med. Record Number:**_____

EXAM DATE >>>>>>>>>>>>>>>>						
RT TERMINAL ICA TAMAX cm/s						
RT MCA AT BIFURCATION TAMAX cm/s						
RT ACA AT BIFURCATION TAMAX cm/s						
RT MCA TAMAX cm/s						
RT ACA TAMAX cm/s						
LT TERMINAL ICA TAMAX cm/s						
LT MCA AT BIFURCATION TAMAX cm/s						
LT ACA AT BIFURCATION TAMAX cm/s						
LT MCA TAMAX cm/s						
LT ACA TAMAX cm/s						

STOP CRITERIA

TAMAX: < 170 cm/s: NORMAL - repeat annually
TAMAX: 170 – 184 cm/s: LOW CONDITIONAL – repeat at 3 month intervals
TAMAX: 185 – 199 cm/s: HIGH CONDITIONAL – repeat after 1 month; if unchanged repeat every 3 months
TAMAX: 200 -219 cm/s: ABNORMAL: repeat after 1 month; if result decreases to 170 – 199 repeat in 1 month if high conditional (185 – 199) or repeat in 6 months if low conditional (170 – 184). If result is normal (<170) repeat in 1 year.
TAMAX: > 220 cm/s: Imminent risk of stroke