[4507.75] Near Infrared Spectroscopy (NIRS) in Newborns with Hypoxic Ischemic Encephalopathy (HIE) Who Received Whole Body Hypothermia (WBH)

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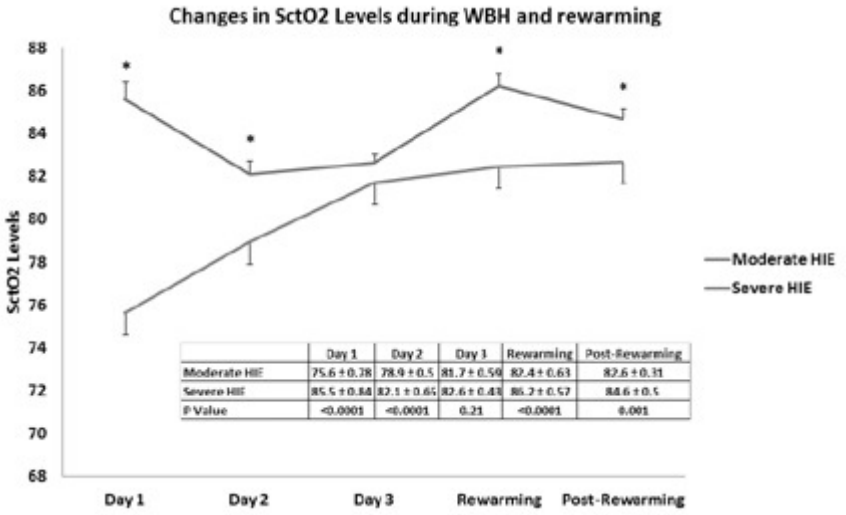
BACKGROUND: Newborns with moderate to severe Hypoxic Ischemic Encephalopathy (HIE) have better neurodevelopmental outcomes when treated with Whole Body Hypothermia (WBH). Changes in cerebral tissue oxygen saturation (SctO2) in newborns who receive WBH for HIE are not established. Near Infrared Spectroscopy (NIRS) is used to measure SctO2.
OBJECTIVE: To evaluate changes in SctO2 levels in newborns with moderate to severe HIE during cooling and rewarming phases of WBH.
DESIGN/METHODS: Nine neonates born at more than 36 weeks gestation with severe HIE and 10 newborns with moderate HIE that qualified for WBH were enrolled. The FORESIGHT™ (CASMED, USA) absolute oximeter was used to measure SctO2 levels. SctO2 data were averaged over a period of 10 minutes corresponding to each of the clinical event including blood gases, vital signs, and the set temperature changes during cooling and rewarming phases of WBH.
RESULTS: Demographic characteristics are described.

Table 1: Demographic characteristics.

Parameter	Moderate HIE (n= 11)	Severe HIE (n= 9)	P Value
Birth Weight (Mean ± SD)	3314 ±384	3504 ± 715	NS
Gestational age (Mean ± SD)	38.4 ± 1.5	38.9 ± 1.3	NS
Black Race n(%)	6 (54)	5(55)	NS
Female Gender n(%)	4 (36)	3 (33)	NS
5 minute Apgar (Mean ± SD)	4.49 ± 1.6	2.23 ± 1.4	0.026
PPHN n(%)	4 (36)	5 (44)	NS
Death n (%)	0 (0)	3 (33)	0.074

SctO2 levels were higher in newborns with severe HIE during first 48 hours of WBH.



SctO2 levels were similar during the third day of WBH. During the rewarming period SctO2 levels rose significantly in newborns with severe HIE as compared those with moderate HIE and persisted at a higher level in post rewarming

period. SctO2 levels significantly correlated with esophageal temperatures only in newborns with severe HIE. CONCLUSIONS: Higher SctO2 levels in newborns with severe HIE may reflect ongoing reperfusion injury. SctO2 levels may be useful as biomarker for reperfusion related injuries during rewarming period and help optimize WBH.

E-PAS2012:4507.75

Session: Poster Session: Neonatal Neurology (10:00 AM - 2:00 PM)
Date/Time: Tuesday, May 1, 2012 - 10:00 AM
Room: Exhibit Halls A/B - Hynes Convention Center
Board: 75
Course Code: 4507

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