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Standardization of the "Golden Hour" in ELBW and VLBW: Improving outcomes and reducing cost

James A Fritzell Jr, Ching Tay, Okkyung Suh and Lena Kim Miller children's Hospital Long Beach, USA

Background: The importance and impact of early supportive intervention and stabilization of transitioning extremely low birth weight (ELBW) and very low birth weight (VLBW) is not for debate. Reproducible evidence based support in a multidisciplinary team approach has weight on the early and long term outcomes of periviable premature infants and has come to be known as the "Golden Hour". The "Golden Hour" concept, extrapolated from adult trauma centers, focuses on multidisciplinary protocols driving timely task based support. In our 95 bed Level III unit with an average census of 38 VLBW infants, we adopted this conceptual early care to drive our first hour of life support for all infant <1500 gm and < 32 weeks gestation to streamline care and reduce exposure to unnecessary and invasive procedures.

Objective: Initiate a multidisciplinary clinical care checklist with time metered delivery to reduce the need for intubation and surfactant delivery in infants <32 weeks and <1500 gm.

Methods: A small baby program multidisciplinary steering team consisting of a neonatal physician, nurse, nutritionist and respiratory therapist was formed to create a "Golden Hour" checklist. This checklist would have a central timeline that would provide metered clinical care tasks from all aspects of neonatal care at the point of birth until the end of the first hour of life. The need for intubation and early surfactant dosing was noted in the first 24 hours of life for one year (2016) and compared to a previous one year epoch (2009) when the standard of care was intubation and early ventilation of care for all infants <1500 gm and <32 weeks.

Results: Our baseline incidence of intubation and surfactant delivery throughout 2009 was 0.51 for infants <1500 gm and 0.738 for infants <1000gm. After initiation of the "Golden Hour" checklist the incidence decreased to 0.397 for infants <1500 gm and 0.567 of infants <1000gm. This created a NNT of 8.8 for infants <1500 gm and NNT of 5.8 for infants <1000 gm. During these same epochs, we saw a reduction in CLD (oxygen exposure at >36 weeks cGA) of 25.02% to 20.76% for infants <1500 gm.

Conclusion: The standardization and reproducibility of care within the "Golden Hour" of premature infants are critical in influencing immediate and long term outcomes of this at risk group at risk. Care checklists and reproducible performance tasks have shown to improve the rate of intubation and surfactant needs in immediate outcomes and reduce CLD for long term outcomes. These benefits have immediate impacts on the cost burden of care, reducing early surfactant cost, and long term burden with reduction in co-morbidities associated with CLD.

fritzell.james@yahoo.com