072

EARLY DETECTION OF LATE-ONSET SEPSIS IN VERY LOW BIRTH WEIGHT INFANTS

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Objective: Early detection of late onset sepsis (LOS) in the NICU is hindered by the fact that suspicious symptoms are often late and nonspecific while many laboratory adjuvant tests have a poor early sensitivity. A mathematical algorithm (RALIS #1, Integralis Ltd Israel) using six routine clinical parameters measured every two hours (Body temperature, Heart Rate, Respiratory Rate, Episodes of Bradycardia and Oxygen Desaturation, Body weight) has been developed to allow for early detection of LOS.

We present the results of a prospective study where this algorithm was used for early detection of LOS, in VLBW premature infants.

Methods: 98 preterm infants, admitted in the neonatal intensive care unit during the period between June 2009 and January 2011, were prospectively monitored for the first 8 to 21 days of life. Gestational age was < 33 weeks and birth weight < 1700 g. 1795 days of monitoring are included. Readings from the RALIS device were compared with clinical and culture results.

Results: The RALIS algorithm identified 1255 of the 1549 normal days and 238 of the 246 days with sepsis. It had a false negative rate of 3% and a false positive rate of 19%. p-value in a chi-square test was < 0.0001. As was shown in a previous retrospective study, the RALIS system detected LOS at a significant earlier age than the age at which LOS was clinically suspected.

Conclusions: These results imply that RALIS may have an important role in the early detection of LOS in VLBW infants.