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Poster Abstracts

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LAMELLAR BODY COUNTS ON GASTRIC ASPIRATES AT BIRTH PREDICTS RESPIRATORY DISTRESS SYNDROME

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Background: Early treatment with surfactant betters the outcome of respiratory distress syndrome (RDS). However, only about half of very preterm infants need surfactant when supported by early nasal CPAP or mechanical ventilation. Therefore, there is need for a rapid and easy accessible method to predict RDS. Lamellar body counts (LBC) on gastric aspirate using the automatic blood counter Sysmex XE-2100 seem to fulfil these conditions (Verder et al, Biol Neonate 2003;32:40).
Objective:
1. To prove that lamellar bodies are present in gastric aspirate.
2. To investigate if different cell counters can be used for LBC.
3. To investigate the influence of blood admixture on LBC.
Methods: Gastric aspirates from infants ≤32 wk's gestation were obtained within 30 min after birth via a feeding tube placed prior to establish-ment of treatment with nasal CPAP. The aspirates were centrifuged at 500 g for 2 min before or after freezing at -20° to minimize debris to avoid clotting in the cell counters. Because lamellar body diameters are similar to that of platelets the platelet channel in the blood counters Sysmex XE-2100, Advia 120, and Cell-dyn 4000 were used for LBC. Before analysis the tubes were turned five times. Diagnosis and grading of RDS was performed as previously described (Verder et al, Pediatrics 1999;103:E24).
Results: Lamellar bodies were visualized in gastric aspirate by electron microscopy. No other particles with the size of platelets were present. Very uniform results were obtained with the Sysmex and Advia counters. Forty-one infants had LBC at a median of 11,000 (1,000-146,000)/µl. With a cut-off level <4,000µ/l the sensitivity was 75%, specificity 86%, and positive and negative predictive values respectively 69% and 89%. The Cell-dyn counter do not seems useful. Thus, 20 aspirates were analysed with a sensitivity of 50% and a specificity of 36%. Blood and platelets seem to clot in less than 12 min after admixture to gastric aspirate. In accordance with that the sensitivities and specificities for LBC on gastric aspirates with and without blood are uniform. No correlation was found between LBC and gestational age. The variation coefficient of LBC was 8% on a specimen with a count of 5,000/µl.
Conclusions: LBC on gastric aspirate using Sysmex XE-2100 and Advia 120 is useful for the diagnosis of RDS. A controlled randomised study is planned.

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