

Adequate glucose control can only be achieved with repetitive blood sampling which means mainly repetitive pain- and stressful procedures many times daily.

Devices measuring glucose levels subcutaneously (CGMS) are widely used in adults and children suffering from diabetes. The feasibility and accuracy of such devices were never evaluated in newborn infants.

**Methods** In this pilot study CGMS sensors were placed in infants (GA >35+0, birthweight >2500g) at risk of hypoglycaemia in addition to routine glucose sampling (RG). The CGMS generates a glucose value every 5 minutes and needs calibration twice a day. Because of unknown glucose delay in infants we correlated RG with CGMS values at 5.10.15.20.25 and 30 minutes following RG.

**Results** We measured 264 RG in 20 infants and used 97 (37%) for CGMS-calibration. The strongest correlation were at 20 min with  $r=0.709$  and corresponding MARD (mean absolute relative deviation) of 13.28%. Plotted in Clark Error Grid showed that 94.5% of the pairs were in zone A and B.

**Conclusion** Based on our findings it seems that CGMS is a reliable and feasible method for testing and following blood glucose levels in infants. The use of CGMS could reduce the amount of painful RG-measurements to 37% and at the same time it increases the patient's safety through a much better glucose control.

The subcutaneous glucose delay in infants is approximately 20 minutes, which was not published before.

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#### EVALUATING VARIATION IN COLONIZATION FROM DIFFERENT PARTS OF UMBILICAL CORD AMONG NEONATES IN HOSPITAL SETTING IN DELHI AND PEMBA TANZANIA

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**Background** Umbilical cord is a potential portal of entry for invasive bacteria causing neonatal sepsis and death from serious infections. Studies have used a single swab covering tip, stump and base region for identifying umbilical cord colonization. Information for bacteriological profile of the cord evaluating variation from tip, stump and base is lacking. As a pilot for a large randomized controlled trial of Chlorhexidine intervention the present study aimed to evaluate the variation in colonization at three sites of cord tip/stump/base.

**Methods** Newborns enrolled from hospitals in Delhi (n=56) and Pemba (n=68), three swabs were collected one each from tip, stump and base of the cord. Swabs were sent to laboratory within 6 hours of collection for identification of pathogens.

**Results** Positivity for bacterial colonization at tip was lower than stump and base. Highest positivity for bacterial growth was found at base (Delhi 0hr-16%; 24hrs-23%; Pemba 0hr-20%) followed by stump (Delhi 0hr-7%; 24hrs-27%; Pemba 0hr-11%). Percentage of newborns with positivity at tip was lowest with 5-6%, 3% and 1.97% among Delhi 0hr, 24hrs and Pemba 0hr respectively. At 24hr, the bacterial colonization for stump and base combination increased from 5% (at baseline) to 21.4%.

**Conclusion** With non-significant variation between the three sites for bacterial isolation, for clinical trials evaluating association of colonization with clinical outcomes taking two swabs (one from tip and other from stump and base of the cord) should be adequate. Association between bacterial isolation at each of two sites with clinical events and mortality needs investigation.

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#### OLFACTORY STIMULATION REDUCES APNEA REFRACTORY TO CAFFEINE AND THE USE OF DOXAPRAM IN PREMATURE NEWBORNS

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Idiopathic apnea of prematurity remains a major clinical problem that requires treatment. For three decades, methylxanthines (caffeine and theophylline) have remained as the primary treatment choice. Several studies have shown the effectiveness of doxapram in reducing apnea refractory to methylxanthines, but numerous side effects have been reported, so that its use remains controversial. In this study, we examined a novel therapy in the form of olfactory stimulation in premature newborns suffering from apnea refractory to caffeine. Thirteen premature newborns born at 28 to 31 gestational weeks were exposed to a pleasant odor diffused during 24 hours in the incubator. A reduction of the number of apnea during the day with odorization compared to the day before (baseline) or the day after (recovery) occurred in all infants. In mean, the reduction reached 42%. Particularly, the apnea associated with episodes of bradycardia and hypoxemia decreased strongly (49%) and affected all the infants. Due to this reduction, no additional treatment with doxapram was necessary. Taken together, these data indicate that the introduction of a pleasant odor in the incubator is of therapeutic value in the treatment of apnea unresponsive to caffeine and give a new possibility to reduce the use of the controversial doxapram.

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#### THE RELATIONSHIP OF MATERNAL ETHNICITY WITH INCIDENCE OF SHOULDER DYSTOCIA IN NEWBORNS: STUDY FROM A LONDON UNIVERSITY HOSPITAL

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**Aims** To evaluate maternal ethnicity as a factor reported to increase the risk of shoulder dystocia, and to evaluate its predictive value at a population level.

**Methods** We conducted a retrospective cohort study of 252 singleton, vertex vaginal deliveries with diagnosed shoulder dystocia born at North Middlesex University Hospital in London, UK. Maternal ethnicity was examined along with maternal characteristics, induction and length of labour, operative vaginal delivery, epidural utilisation, and birth weight. These variables were analysed as factors affecting incidence of shoulder dystocia and subsequent neonatal injury.

**Results** Among women who met study criteria, 252 (2.4%) experienced a shoulder dystocia. Women of black ethnic background (African and Afro-Caribbean) had the highest percentage of shoulder dystocia (43.8%), compared with White background (39.5%) and the lowest was amongst women of Asian background (16.6%). Additionally, in the setting of a shoulder dystocia, a higher risk of brachial plexus injury was observed in neonates delivered by women of Black background taking in to account confounding factors such as birth weight, gestational diabetes and previous shoulder dystocia.

**Conclusions** Overall women of black background have an increased risk of shoulder dystocia and their neonates are more likely to experience birth injury subsequently. Induction of labour and infant birth weight greater than 4000g have traditionally been identified as significant independent predictors of shoulder dystocia; however ethnicity should be taken into account when considering caesarean section as prophylaxis against shoulder dystocia and neonatal investigations for possible brachial plexus injuries post birth.