

from 71 infants (esophageal atresia (20), duodenal atresia (16), jejunal atresia (7), ileal atresia (11) and anal atresia (17) compared between infants with atresia of upper GIT (AUGIT; esophagus, duodenum) and atresia of lower GIT (ALGIT; jejunum, ileum, colon and anal atresia).

**Results** There is a significant difference in BW between UGIA and LGIA: BW below the 10<sup>th</sup> percentile was observed in 16 of 36 patients (44%) with UGIA and only 6 of 35 patients (17%) with LGIA ( $p=0.012$ , UGIA vs. LGIA). There is no statistical significant difference for BL between both groups ( $p=0.735$ ).

**Conclusion** Newborn infants with UGIA had lower birth weight than newborn infants with LGIA. This would be in agreement with the hypothesis that absence or decrease of absorption of amniotic fluid in the fetus leads to lower birth weight.

#### 1404 PROSPECTS OF PROBIOTIC BACTERIAL LECTINS IN MEDICINE

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**Background** Probiotic bacterial lectins (PBL) isolated by us from industrial strains of human origin are important regulators of microbiocenoses.

**The Aim** is to evaluate potential of PBL in medicine.

**Results** The data obtained indicate that preparations of PBL imitate general functions of probiotics, increase or create new useful activities. In biotopes PBL act as intrinsic tool of microbial selection, factor of supporting probiotic compartment. PBL can be used for screening probiotic microbes, sensitive and resistant clinical strains, and also for monitoring balance of biocenosis in directions "Microbes - Microbes" and "Microbes - Organism". Application of PBL (combinations of L of lactobacilli and bifidobacteria [LL and LB] as the model functional imitator of biotope probiotic compartment) is multidirected and use antipathogen cascade multisynnergism of PBL in time and in space. Results indicate that PBL are able to destruct biofilms of pathogen combinations "*Staphylococcus* > or < *Candida*" (synergistic contribution: LL > or < LB). LL+LB possess advantages of probiotic action in cases of biotopes where bifidobacteria or lactobacilli are currently absent. It seems, being delivered into organism, PBL will complete cell system "*Lactobacillus* + *Bifidobacterium* + Other probiotic-like microbes" and increase synbiotic biotope ingredients. The data on synergistic action between PBL and antibiotics allow using PBL in cases of non-effectiveness of antibiotics or for decreasing antibiotic doses.

**Conclusions** Results indicate prospects of PBL in supporting probiotic and synbiotic systems of organism for example during chemotherapy and radiotherapy of tumors, or as ingredients of anti-infectives against eukaryotic pathogens (microfungi and protozoans).

#### 1405 SIGNIFICANT WEIGHT LOSS IN BREASTFED INFANTS IN THE EARLY POSTNATAL LIFE

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**Background and Aims** Breastfed newborn infants can develop significant weight loss in early postnatal period associated with hypernatremia. In our hospital, breastfeeding support is provided to mothers both in hospital and community. This breastfeeding care pathway is based on the UNICEF breastfeeding policy. In spite of this continuous effort, several newborn infants with significant weight loss need hospital re-admission in the early postnatal period.

**Methods** A retrospective audit was performed over 6 months (Jan 2011– June 2011) period. Management of all breastfed infants admitted with weight loss (>7% of birth weight) with or without other clinical symptoms of dehydration were reviewed. Information was collected from infant clinical notes, discharge summaries, hospital pathology reporting system and maternal notes.

**Results** 1908 infants were born during this period, 33 infants (1.73%) required readmissions. No risk factor was identified in 3 infants, 30 infants had one or more risk factors, commonest being caesarean section delivery (61%) followed by infants born to 'first time mother's (33%). 72% of the infants developed jaundice. Majority of the infants(59%) were managed with breast feeding support only whereas 15% needed intravenous fluid support. Most infants (69.6%) were discharged within 48 hrs of admission. Half of the infants developing hypernatremia had comparatively mild weight loss ( $\leq 10\%$  of birth weight).

**Conclusions** Weight loss and Hypernatremia continues to be a problem in neonates particularly in 'at risk' infants. Most of these infants responded well to enteral feeding only. Degree of hypernatremia was not always proportion to the degree of weight loss.

#### 1406 EFFECT OF STORAGE CONTAINER ON BACTERICIDAL ACTIVITY OF HUMAN MILK

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**Aim** Storage of human milk in refrigerator has been recommended for short term storage. It has been shown that some nutritional, immunological, bioactive properties and bactericidal activity of human milk can alter by refrigeration. Pyrex bottles and polyethylene bags are the two common containers in the setting of storage of human milk. The aim of this study is to compare the effect of the type of storage container on bactericidal activity of human milk at different duration of refrigeration.

**Methods** Forty four samples of human milk were collected from 22 lactating mother. Two samples of human milk were obtained by manual expression from each mother. One was collected directly into sterile pyrex bottles and the other into polyethylene bags. Each sample was divided into three aliquots, one was processed immediately and remaining two were kept at 4°C for 24 and 48 hours. Bactericidal activity of each sample was studied. A strain of E.coli ATCC 25922 was used to determine the bactericidal effect of human milk.

**Results** Bactericidal activity was significantly reduced in milk samples kept in polyethylene bags compared to the samples kept in pyrex bottles when milk samples stored at 4°C for 24 and 48 hours ( $p<0.05$ ).

**Conclusion** Short term storage of human milk in pyrex bottles is more appropriate than polyethylene bags for prevention of decrease in bactericidal activity.

#### 1407 CONTINUOUS GLUCOSE MONITORING IN TERM AND NEAR-TERM INFANTS AT RISK OF HYPOGLYCAEMIA - A PILOT STUDY

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**Background and Aims** Postnatal hypoglycaemia is known to increase the risk of adverse neurological outcome in infants at risk.

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.

1408

#### 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.

1409

#### 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.

1410

#### 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.