prior to the procedure and subsequently throughout the ROP examination, which on average lasted 2 minutes. The results were documented on an Excel spreadsheet and analysed using the paired T-test.

Results: A total of 19 infants were studied. The skin conductance peak rate (mean) was 0.017 peaks/s at baseline and was 0.14 peaks/s during the procedure ($p < 0.001$).

Conclusion: The findings indicate that ROP screening causes a degree of stress to preterm infants. The Med-Storm Pain Monitor permits the quantification of the degree of stress encountered by the infant. This technology offers the potential of being able to identify and modify the distress caused by neonatal procedures.

960

COMPLICATIONS IN THE NEAR TERM AND TERM INFANTS WITH SEVERE UMBILICAL ARTERY ACIDEMIA

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Background and aims: Umbilical artery acid-base status is a useful marker of the fetal condition just before birth. The objective of our study was to determine the newborn complications in near term and term infants associated with umbilical artery acidemia of pH ≤ 7.10 .

Study design: We retrospectively reviewed the maternal and neonatal records of infant's ≥ 35 weeks, born between March 2007 and February 2010, with umbilical artery blood pH ≤ 7.10 . Umbilical artery acidemia was classified as metabolic, respiratory and mixed.

Results: 179 babies had an umbilical artery pH of ≤ 7.10 , of which 59 had an umbilical artery pH < 7.00 and 120 had pH between 7.00 - 7.10. Overall 129 (72%) babies showed evidence of fetal distress; 82(45%) underwent emergency caesarean section, 41(22%) underwent instrumental vaginal delivery. Table below describes the neonatal complications in the two groups.

Complications	pH < 7 (n = 59)	pH 7.00 - 7.10 (n=120)
Mixed or metabolic acidosis	57(97%)	43(36%)
Admission to NICU	38(64%)	11(9%)
Clinical seizures (median onset 8 hours)	20(34%)	2(1.6%)
HIE(moderate/severe)	22(37%)	2(1.6%)
Cerebral function monitoring abnormalities	16(27%)	2(1.6%)

[Umbilical cord acidosis and neonatal outcomes]

Conclusion: The risk of moderate or severe hypoxic ischemic encephalopathy and neonatal seizures is high if umbilical artery pH is < 7.00 along with presence of mixed or metabolic acidosis . Hence these babies should have cerebral function monitoring at least for the first 24 hours.

961

INCIDENCE OF HYPOTHERMIA IN LOW BIRTH WEIGHT INFANTS ADMITTED TO THE NEONATAL INTENSIVE CARE UNIT BETWEEN 2002 AND 2009

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Background: Not all LBW infants require admission to the SCBU. Hypothermia ($< 36.5^{\circ}\text{C}$) in premature infants may necessitate admission to SCBU. This interferes with mother-infant bonding and breast-feeding. LBW infants are particularly at risk of hypothermia because of larger surface-area-to-weight ratio, reduced subcutaneous fat and impaired metabolic compensation. This study examines the incidence of hypothermia in moderately low birth weight (LBW) infants.

Aims: To document the incidence of hypothermia on admission in moderately LBW infants between 1800 - 2500 grams admitted to the Neonatal Unit of the Rotunda Hospital between 2002 and 2009 and compare it to the hypothermia rate in larger babies.

Methods: Retrospective review of moderately LBW infants admitted to the SCBU in the Rotunda with birth weights >1800g and < 2500g. Patients were identified using the unit database; further information obtained from chart review where necessary. All infants had temperature recorded on admission.

Results: 340 infants fulfilled the weight criteria. 44% of these were hypothermic on admission: 27% had mild hypothermia (36-36.4°C); 17% had moderate hypothermia (32-35.9°C). No patients had severe hypothermia. The lowest recorded temperature was 34° C. Overall rate of hypothermia in this group: 44% versus 32.4% in infants >2.5kg.

Conclusion: A significant number (44%) of LBW infants weighing 1.8 to 2.5kg admitted to the SCBU had mild to moderate hypothermia. The rate of hypothermia in larger infants (>2.5kg) was 32%. This indicates the need for improving practices to prevent hypothermia in the delivery room and during transfer of LBW infants.

962

HEARTLIGHT - DELIVERY ROOM ACQUISITION TIME FOR A NOVEL FOREHEAD HEART RATE SENSOR FOR NEWBORN RESUSCITATION

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Background: Approximately 10% of newborn babies require some form of resuscitation at birth. Heart rate (HR) is one of the best indicators of effective resuscitation and is currently assessed with a stethoscope. However, this is not continuous, can interrupt resuscitation and is calculated incorrectly in 20-30% of cases. Pulse oximeters, attached to limbs, are not designed for monitoring HR and are unreliable in low perfusion states frequently observed in sick newborn infants. Use of a forehead HR sensor would be advantageous allowing quick placement, continuous monitoring and improved reliability in low perfusion states.

Aims: Develop a user friendly, quick and reliable forehead HR sensor for use in newborn infants requiring delivery room resuscitation.

Methods: We have developed a forehead HR sensor (HeartLight), utilising patented reflectance

photoplethysmography technology, to detect changes in pulse volume with a rapid acquisition time. The HeartLight can be sited within ten seconds. Following development in the NICU, we examined the acquisition time of the HeartLight sensor in the delivery room in term newborn babies (birth weight 3263±486g, n=16). Time to acquire a reliable signal was measured from the time the sensor was activated.

Results: Median time to obtain the first two consecutive pulsations was 1.8 seconds (IQR 1.4-8.0s) and first ten consecutive pulsations was 13.2 seconds (IQR 4.4-50.8s).

Conclusion: The HeartLight sensor may offer a simple, quick and continuous way to monitor the newborn HR during delivery room resuscitation. HeartLight is currently undergoing further development and clinical trials in preterm deliveries.

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963

VARIATION OF DELIVERY ROOM RESUSCITATION PRACTICE IN THE UK

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Background: Advances in neonatal intensive care have improved outcomes for term and preterm infants. Delivery room (DR) management of newborn infants remains basic although recent advances include the use of air for resuscitation, plastic wraps/bags for temperature preservation, DR CPAP and pulse oximetry. No data exist on DR management of newborns in the UK.

Aim: Establish current DR management of newborn infants in the UK.

Methods: A telephone/email/postal survey of DR management in UK neonatal units during 2009. 192 units were surveyed and 171 (89%) responded (65 Level III and 106 Level II/I units). Comparisons were made between level III (intensive care) and level II/I units (high dependency/special care).