Background Preterm infants at term equivalent age are smaller than full term infants with a higher fat mass. The aim of this study was to determine if alterations in adiposity are already evident at 32–36 weeks corrected age (CA).

Methods Preterm babies (n=21) born before 32 weeks gestation were studied between 32 and 36 weeks CA using the PEAPOD Infant Body Composition System to assess % body fat. The data were compared with a second group of babies (n=17) born at 32–36 weeks gestation.

Results Mean % body fat at 32–36w CA in infants born < 32w was 14.1 ± 5.8 (mean $\pm$ SD) and this was significantly higher than % body fat in infants born at 32–36 weeks (7.9 ± 4.5 , $P < 0.01$). Mean % body fat at 32–36 weeks in infants born < 32w was also significantly higher than % fat at birth in infants born at term (10.1 ± 4.1 , $P < 0.05$). % body fat in infants born < 32w was positively correlated ($R = 0.59$, $P < 0.05$) with post-natal age at measurement suggesting that longer periods of ex utero nutrition result in greater increases on % body fat. % body fat in infants born < 32w was also positively correlated with weight at the time of measurement ($R = 0.56$, $P < 0.01$) and there was a tendency for those babies who had gained weight most rapidly since birth to have higher % fat.

Conclusion % body fat in infants born < 32 weeks is elevated by 32–36 weeks CA.

1348 EARLY FORMATION OF PHOTOISOMERS DURING PHOTOTHERAPY IS NOT SIGNIFICANTLY ENHANCED BY INCREASING IRRADIANCE OR EMPLOYING PHOTODIODE LIGHTS

doi:10.1136/archdischild-2012-302724.1348

¹K Mreihil, ²P Madsen, ^{1,3}B Nakstad, ⁴F Ebbesen, ^{3,5}TWR Hansen. ¹Barne- og Ungdomsklinikken, Akershus University Hospital, Lørenskog, Norway; ²Pediatrics, Aalborg Sygehus Nord, Aalborg, Denmark; ³Faculty of Medicine, University of Oslo, Oslo University Hospital, Oslo, Norway; ⁴Pediatrics, Aalborg Sygehus Nord, Faculty of Medicine, University of Aarhus, Aalborg, Denmark; ⁵Kvinne- og Barne Klinikken, Oslo University Hospital Rikshospitalet, Oslo, Norway

Background Phototherapy is the mainstay of treatment for neonatal jaundice. Photoisomers are more polar than native bilirubin IX- α (z, z) and can be excreted in bile and urine without conjugation. Rapid formation of PI may be an important component of the crash-cart approach to extreme NJ.

Objective To compare the rate and degree of photoisomerization during intensive phototherapy using single or double banks of fluorescent lights vs a single bank of photodiodes.

Design and methods: The study was approved by the regional research ethics committee. 42 newborn infants due to receive phototherapy for NJ according to Norwegian national guidelines. Enrolled by written informed consent from the parents. Infants were randomly to one of 3 groups:

- single unit phototherapy with fluorescent lights
- double unit fluorescent phototherapy;
- single unit photodiode. Irradiance was measured on the back and flanks.

Blood was drawn at 0, 15, 30, 60, 120, and 240 minutes. Total serum bilirubin was analyzed by cooximetry. Serum samples were frozen and analyzed for photoisomers by HPLC. Data were analyzed using Anova and t-tests.

Results Irradiance was significantly higher using double fluorescent lights vs single fluorescent and photodiodes (40.4 $p < 0.05$ for double vs single fluorescent and single photodiodes, measured on the back). 2-way Anova was highly significant for increase of PI over time ($p < 0.0001$), and significant for group differences ($p < 0.05$).

Abstract 1348 Figure 1 Study Groups

Formation of PI reached 25% at 4h, and did not appear to have plateaued.

Conclusions Formation of PI is rapid during intensive phototherapy. However, increasing irradiance or changing the character of the light source did not significantly improve the rate or level of PI formation.

1349 TREATING INFANTS OF VITAMIN D DEFICIENT MOTHERS - IS ROUTINE SUPPLEMENTATION WITH ABIDEC ALONE SUFFICIENT

doi:10.1136/archdischild-2012-302724.1349

A Rakhecha, K Ganesan. Department of Neonatology, St Mary's Hospital, Central Manchester University Hospitals, Manchester, UK

Background and Aims Infants with maternal vitamin D deficiency are at increased risk of low vitamin D levels. Cholecalciferol is the usual treatment for such infants. We wanted to see whether routine vitamin supplementation with Abidec alone was enough to normalize vitamin D levels in such infants.

Methods All infants with maternal vitamin D deficiency, after August 2011 were given 0.6ml Abidec which provides 400IU of vitamin D2. Vitamin D levels were done at birth and infants with borderline (10–20ng/dl) or deficient (< 10ng/dl) vitamin D levels had repeat test at follow-up. Records of all such infants, from August to November 2011 were reviewed. The results were also compared to the period when cholecalciferol was used.

Results Total 64 patients were identified. Initial vitamin D results were obtained for 60 infants of which 16 infants were deficient (range 3.1 to 9.1 ng/dl), 20 had borderline (range 10.3–19.8 ng/dl), 10 had suboptimal (range 20.6–29.7ng/dl) and 14 infants had normal vitamin D levels.

Post treatment levels were available for 17 out of 36 infants with low or borderline levels. Of the 5 infants with initially deficient levels, 3 had normal, 1 had suboptimal and 1 had borderline vitamin D post treatment levels. 8 of the 12 infants with borderline vitamin D levels had normalized and 4 had suboptimal vitamin D levels post treatment.

These results were comparable to the period when cholecalciferol was used.

Abstract 1349 Table 1

	Treatment with Abidec Median (range)	Treatment with Cholecalciferol Median (range)
Birth Weight (kilogram)	3.26 (2.25–5.01)	3.27 (1.94–4.72)
Gestational Age (weeks)	39.5 (36–42)	40 (36–43)
Initial Vitamin D levels (ng/dl)	14.9 (3.1–54)	12.8 (1.3–69.8)
Post Treatment Vitamin D levels	32.2 (11.6–44.1)	40.6 (26.3–8–0.2)
Time from birth to initial Vitamin D levels (days)	1 (0–69)	2 (0–38)
Time between initial and post treatment Vitamin D levels (days)	49 (37–122)	77 (18–266)

Conclusions Abidec alone is effective treatment for infants with maternal vitamin D deficiency.

1350 LOW 25-HYDROXYVITAMIN D LEVEL AND ADIPONECTIN IS ASSOCIATED WITH INSULIN SENSITIVITY IN LARGE GESTATIONAL AGE INFANTS

doi:10.1136/archdischild-2012-302724.1350

¹F Cekmez, ²G Aydemir, ¹S Aydin, ¹O Pirgon, ¹FA Genc, ¹T Tunc, ¹SU Sarici. ¹Gülhane Askeri Tıp Akademisi, Ankara; ²GATA Haydarpaşa Teaching Hospital, Istanbul, Turkey

Objective To investigate the relationship between adipokines (visfatin, adiponectin) and 25-hydroxyvitamin D (25(OH)D), and markers of insulin sensitivity in large for gestational age (LGA) infants.

Patients and Methods Forty LGA infants (25 LGA born to diabetic mothers and 15 LGA born to non-diabetic mothers) and 34 appropriate for gestational age (AGA) infants were recruited.

Results FGIR, QUICK-I, adiponectin and 25(OH)D levels were significantly lower in LGA with diabetic mother group than AGA and LGA with non-diabetic mother group. HOMA-IR, fasting insulin, visfatin and parathormone (PTH) levels were significantly higher in LGA with diabetic mother group than AGA and LGA with non-diabetic mother group.

Conclusion Based on the findings of this study, visfatin, adiponectin and 25(OH)D levels can be used as specific markers for insulin sensitivity and may help advance new therapies for glucose intolerance spectrum.

1351 OSTEOPENIA IN HIGH RISK PRETERM POPULATION IN MANITOBA: A CASE-CONTROL STUDY

doi:10.1136/archdischild-2012-302724.1351

^{1,2}H Soyly, ¹E Ali, ³M Reed, ¹S Fast, ¹SE Moisiuk, ¹MM Seshia. ¹Neonatology/Pediatrics; ²Pharmacology & Therapeutics; ³Radiology, University of Manitoba, Winnipeg, MB, Canada

Background Despite recent advances in care of VLBW infants, osteopenia of prematurity (OP) remains an important problem in most NICUs.

Objective To compare demographic, perinatal and postnatal characteristics of OP in VLBW babies admitted to our Level III NICU, to elucidate risk factors and association of biochemical bone markers with radiological changes and the clinical outcome.

Design/methods Infants born ≤ 29 weeks GA and admitted between October 2007 to January 2011. Only those infants with both chest X-rays and biochemical markers at or beyond 6 weeks post natal age were included. Infants were grouped as cases and controls based on serum Ca, P, ALP and X-ray findings and were stratified by GA: 24–25, 26–27 and 28–29 weeks. X-ray findings and biochemical results were considered in 2 week periods.

Results Of 176 potentially eligible infants 54 (GA 26.9 $\pm$ 0.2 wks, BW 970 $\pm$ 34 g) met the criteria for inclusion. 26% of the cases vs. 3% of the controls were from communities north of the 55° latitude ($p < 0.05$). Serum Ca levels were within the normal range, but serum P levels were subnormal. The most significant biochemical discriminator between the two groups was the serum ALP level.

Table: Main characteristics of the groups. (Mean $\pm$ SE)

	24-25 GA		26-27 GA		28-29 GA	
	Cases (n:6)	Controls (n:6)	Cases (n:10)	Controls (n:14)	Cases (n:7)	Controls (n:11)
Gestational age (wk)	24.8 $\pm$ 0.2	25 $\pm$ 0.1	26.3 $\pm$ 0.1	26.7 $\pm$ 0.2	28.7 $\pm$ 0.2	28.6 $\pm$ 0.2
Birth weight (g)	818 $\pm$ 49	793 $\pm$ 42	918 $\pm$ 87	945 $\pm$ 39	1023 $\pm$ 132	1194 $\pm$ 72
Mech. Vent. (d)	50 $\pm$ 6	44 $\pm$ 7	26 $\pm$ 4	25 $\pm$ 8	17 $\pm$ 3	16 $\pm$ 4
CPAP&Nasal flow(d)	119 $\pm$ 15	119 $\pm$ 11	108 $\pm$ 14	83 $\pm$ 12	67 $\pm$ 13	75 $\pm$ 10
Ca (mmol/L)	2.3 $\pm$ 0.03	2.3 $\pm$ 0.06	2.3 $\pm$ 0.04	2.27 $\pm$ 0.04	2.24 $\pm$ 0.05	2.3 $\pm$ 0.04
P (mmol/L)	1.7 $\pm$ 0.05	1.84 $\pm$ 0.06	1.7 $\pm$ 0.05	1.76 $\pm$ 0.04	1.64 $\pm$ 0.08*	1.82 $\pm$ 0.04
ALP (IU/L)	449 $\pm$ 21**	308 $\pm$ 17	405 $\pm$ 22**	287 $\pm$ 12	390 $\pm$ 33**	285 $\pm$ 16
Albumin (g/L)	24.3 $\pm$ 0.8	24.9 $\pm$ 1	24.9 $\pm$ 0.7*	26.8 $\pm$ 0.7	23.4 $\pm$ 0.9*	26.2 $\pm$ 0.9

* $p < 0.05$, ** $p < 0.01$, between cases and controls

Conclusions Our results suggest that geographic factors may be a surrogate marker for maternal factors contributing to the etiology of OP. Future prospective studies may be helpful to define this. Biochemical markers, excepting ALP, are not predictive for OP diagnosis.

1352 SURVEY OF MANAGEMENT OF NEONATAL HYPERGLYCAEMIA IN LEVEL 3 NEONATAL UNITS IN UK

doi:10.1136/archdischild-2012-302724.1352

¹A Gupta, ²A Lakshmanan, ¹C Harikumar, ¹S Janakiraman. ¹Department of Paediatrics, University Hospital of North Tees, Stockton-on-Tees; ²Department of Paediatrics, Addenbrookes Hospital, Cambridge, UK

Introduction and aim: Hyperglycaemia in preterm babies is a common problem. It is known to be associated with an increased risk of morbidity and mortality, especially in extreme preterm babies. Despite this, there is little established consensus of management. Nonetheless, practice is improving as the neonatal units develop local guidelines on the basis of the limited available research. Currently we don't know the specifics of the prevailing practice, and this is the first needed step in order to carry out any substantial further research.

We carried out the survey to study the prevailing practice in level 3/tertiary units in the United Kingdom.

Methods We collated a list of level 3 units from the British Association of Perinatal Medicine (BAPM) website. We sent an online questionnaire to the Neonatal Consultant. We followed up with a phone call to get more responses.

Results We received responses from 51 units (81%). It showed that the 80% of units either follow local or regional guidelines and the majority (78.4%) now use gas machine for measuring blood glucose. We found there is quite a variation in definition of hyperglycaemia, modalities of management, insulin regimen and the endpoint of treatment.

Conclusions Management of neonatal hyperglycaemia is very unit dependant. We agree with other experts that large randomised trials in hyperglycaemic VLBW neonates that are powered on clinical outcomes are needed to determine whether and how the hyperglycaemia should be treated.

1353 INSULIN-TREATED HYPERGLYCAEMIA IS ASSOCIATED WITH LOWER AMINO ACID LEVELS IN VERY PRETERM INFANTS RECEIVING PARENTERAL NUTRITION

doi:10.1136/archdischild-2012-302724.1353