calculation (laboratory full blood count; LHCT) and conductivity (blood gas analyzer haematocrit; BGHCT). All three methods are often used interchangeably or simultaneously. However, limited studies suggest that SHCT values are higher than others due to plasma trapping. This study compares neonatal HCT measurements by the three different techniques using statistical methods.

Methods Retrospective review of data extracted from a point of care testing logbook kept in our neonatal unit (for SHCT and BGHCT) and electronic laboratory records. Venous samples that concurrent testing with more than one methodology was done were included. Capillary and arterial samples were excluded. Results from each method were compared using a paired sample t-test and agreement was examined by Bland-Altman analysis.

Results A total of 137 samples from 127 unique neonatal patients were identified. The mean and median HCT values for each method are shown in table 1. A strong correlation ($R^2 = 0.875$) between LHCT and SHCT values, as well as between LHCT and BGHCT values ($R^2 = 0.903$) was seen. However, SHCT values were higher than LHCT values with a mean difference of 5.19% (4.53, 5.86). A paired t-test found this difference to be statistically significant; $t(126) = 15.5$, $p < 0.001$. This mean difference was even higher (6.7%) in the subgroup analysis for HCT values $> 65\%$ which are consistent with polycythemia. The Bland-Altman difference plot for LHCT and SHCT methods demonstrated a good agreement between the two, but also defined a bias of 5.2%, with an agreement range of -2.18 to 12.57.

Abstract G571 Table 1

	Median	Mean	SD
SHCT	59	58.98	10.45
LHCT	54	53.35	9.25
BGHCT	57	55	11.7

Conclusion Although there is good correlation between all the test values, our study confirms that SHCT values are consistently higher than the others. Further studies are needed to investigate the clinical impact of this observed difference between methodologies, in neonatal practice and particularly in the management of neonatal polycythemia.

G572(P) EVIDENCE FOR FEEDING PRACTICES IN VERY LOW BIRTHWEIGHT INFANTS IN SUB-SAHARAN AFRICA AND IMPLICATIONS FOR FUTURE RESEARCH: AN OVERVIEW OF SYSTEMATIC REVIEWS

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Aim To review the evidence available for optimising feeding of VLBW infants in sub Saharan Africa (sSA) and to identify areas for future research.

Methods We did a comprehensive literature search in Cochrane Database of Systematic reviews, EMBASE, PUBMED and CINAHL (July 2019). The key search terms were: very

low birthweight AND (enteral feeding or enteral nutrition) AND (systematic review or meta-analysis). Systematic reviews and meta-analyses of randomised and quasi-randomised controlled trials of interventions which focused on the effect of four 'basic' feeding practices: when to start enteral feeds, what to feed when EBM is insufficient or unavailable, how to feed and how to advance feeds on weight gain during hospital stay and time to achieve full enteral feeds were eligible for inclusion. We assessed the quality of each review using the AMSTAR (A Measurement Tool to Assess systematic Reviews) tool.

Results We included 8 systematic reviews comprising of 10 comparisons, all were of high methodological quality and assessed what to feed, how to feed and how to advance feeds. There were no reviews which examined the effect of early trophic feeding (at age < 24 hours) and the use of preterm formula. There was no clear evidence of benefit of fortification of breast milk from the 3 reviews assessed. There was no clear evidence of benefit of use of nasogastric versus orogastric feeding and continuous versus bolus feeds. Rapid advancement of feeds was found to reduce time to full enteral feeds and episodes of late onset sepsis. None of the trials were done in sSA.

Conclusion There is a need for pragmatic trials in preterm feeding in sub-Saharan Africa that would consider inexpensive, low technology and sustainable interventions in the area of when to start feeds, what to feed, absolute volumes, modes of feeding and use of fortification. There is evidence that rapid advancement of feeds will confer benefits to babies in sSA where fortification with extra protein or calories might not be feasible, affordable or available.

G573(P) 'HOW LONG IS NOT SHORT?': DURATION OF CAFFEINE THERAPY IN PRETERM INFANTS – A RANDOMIZED CONTROLLED TRIAL

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Aim The aim was to compare recurrence of clinically significant apnea (CSA) using 2 protocols to stop caffeine therapy in preterm infants.

Methods This prospective, randomized controlled trial studied babies born at 26–32 weeks gestation in 2 groups: Group 1 (SEVEN): Caffeine therapy was stopped immediately once the infants on caffeine were apnea free and off respiratory supports for 7 consecutive days; Group 2 (THIRTYFOUR): Caffeine therapy was continued mandatorily till minimum of 34 weeks postmenstrual age (PMA) and thereafter stopped only after baby was apnea free and off respiratory supports for at least one week. Randomization was done using a computer generated random number sequence and allocation concealment using Sequentially Numbered Opaque Sealed Envelopes. The predefined primary outcome was proportion of infants with recurrence of clinically significant apnea after stopping caffeine. The secondary outcomes included day of recurrence of CSA, PMA of last caffeine dose, adverse effects, Extrauterine growth restriction, Necrotizing Enterocolitis, Bronchopulmonary dysplasia, Retinopathy Of Prematurity, and mortality.

Results 120 infants were randomized: 60 to each group. There was no difference in the baseline characteristics between the

two groups. Proportion of infants with CSA, between the SEVEN and THIRTYFOUR groups were similar (15% vs 13% respectively), OR 0.87; 95% CI (0.31–2.43). As a whole, the risk of CSA recurrence was high in the subgroup of 26–29 weeks, 14/53 (26.4%) and in infants with moderate-severe RDS (16/77, 21%). On the other hand, in babies of gestation more than 29 weeks and those with minimal RDS, risk of CSA was negligible, irrespective of protocol used to stop caffeine. Total duration of caffeine was lesser (19.5 vs 33 days), and could be stopped earlier (33 vs 34 weeks PMA) in SEVEN compared to THIRTYFOUR. Other secondary outcomes were not different between the groups.

Conclusions Recurrence of clinically significant apnea was not different among preterm babies who were treated with caffeine beyond 34 weeks and those whose caffeine was stopped after 1 week apnea free interval. The SEVEN-day protocol significantly reduced duration of therapy and allowed discontinuation at earlier postmenstrual age. Recurrence of apnea was less across both groups in babies >29 weeks gestation and who had mild RDS at birth.

G574(P) ABSTRACT WITHDRAWN

G575(P) NEONATAL T CELLS ACQUIRE BOTH PRO-INFLAMMATORY AND TOLERANT PHENOTYPES IN FIRST THREE WEEKS OF LIFE

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The neonatal immune system needs to rapidly adapt to environmental changes following delivery in order to fight pathogens and tolerate harmless antigens. The precise kinetics of these changes and the key cellular and soluble components of the immune system remain to be elucidated. We aimed to describe changes in the immune phenotype of neonates in the first 3 weeks of life following delivery.

We collected cord blood samples from 19 healthy, term neonates delivered by elective Caesarean sections. A pre-delivery maternal peripheral blood sample was also obtained. The neonates were re-sampled for peripheral blood at 3 weeks of age. Mononuclear cells were isolated from these samples and were measured on 2 flow cytometry panels consisting of a total of 20 intracellular and cell surface markers.

The proportion of IL-8-producing CD4 and CD8 cells was lower in maternal compared to neonatal samples. Intracellular IL-17 production of CD4 and CD8 cells increased by 3 weeks of age compared to cord blood. The proportion of Tregs (CD4+ CD25high FoxP3+) increased by 3 weeks compared to cord blood, but remained lower in comparison to maternal samples. The proportion and cytotoxic activity (CD107a+) of CD8 cells, as well as the proportion of IFN-gamma-producing CD4 and CD8 cells were lower in neonatal compared to maternal samples. The proportion of HLA-DR+ and CD69+ T cells was also lower in neonatal compared to maternal samples.

While neonatal T cells maintain an IL-8 phenotype during the first 3 weeks of life, they also acquire an IL-17 phenotype, possibly contributing to their ability to fight infection. On the other hand, the proportion of Tregs also increase by 3 weeks of age, playing an important role in establishing tolerance towards harmless environmental antigens.

G576(P) SACROCOCYGEAL TERATOMA: PRENATAL DIAGNOSIS TO POST-SURGICAL FOLLOW UP

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Introduction Sacrococcygeal teratoma (SCT) is the most common neonatal tumour. Albeit perinatal and surgical complications have been extensively reported, the information regarding the natural history of SCT from prenatal diagnosis to post-surgical outcome beyond the neonatal period is limited. The aim of this study was to review the outcome in a cohort of newborn infants delivered over 15 years in a single tertiary centre in the UK following prenatal diagnosis to surgical resection and long-term follow-up.

Methods Newborn infants with a prenatal diagnosis of SCT and delivered between 2004 and 2018 were identified from the hospital records. Following initial stabilisation, infants were transferred to a local surgical centre. Medical records in both centres were reviewed retrospectively for demographic information, tumour characteristics, perinatal status, surgical details and post-surgical complications.

Results 19 cases of SCT were identified over 15 years (2.2:1 female-to-male ratio). Most were of Altman type II (68%) with mature histology (57.9%), mixed morphology (47%), and minimal or moderate vascularity (52.6%). No teratomas were malignant.

In utero complications included polyhydramnios (31.5%), high-output failure (26%) and bilateral hydronephrosis (10.5%). There was one perinatal death (related to immediate postnatal haemorrhage), however, no intrauterine demises or stillbirth noted.

Average gestation at delivery was 34+6 weeks. Majority were delivered by elective C-section (58%). 52.6% of infants required support at birth which was associated more with male gender; larger, fast-growing and vascular tumours; presence of *in utero* complications, pre-term delivery and emergency C-section.

The commonest surgical approach was prone (83%) with coccygectomy reported in 87.5%. 12.5% of cases were complicated by tumour spillage and incomplete resection. No recurrences noted. Long-term surgical complications were common and included gastrointestinal (62.5%), urological (37.5%), local (31%) and neurological/gait (18.8%). Surgical complications were higher with male gender, higher birthweight, delayed prenatal detection, larger size, fast growth, immature histology, feeding vessels and a greater AFP half-life. Furthermore, surgical complications were more frequent with *in utero* interventions.

Conclusion Overall, SCTs had favourable prognosis with 95% survival rate. While poor condition at delivery was associated with known risk factors, long-term complications were not always predicted by early complications or poor condition at birth.