G443(P) FOLLOW-UP BETWEEN 6 AND 24 MONTHS AFTER DISCHARGE FROM TREATMENT FOR SEVERE ACUTE MALNUTRITION IN CHILDREN AGED 6–59 MONTHS: A SYSTEMATIC REVIEW

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10.1136/archdischild-2018-rcpch.432

Background Severe acute malnutrition (SAM) is a major global health problem estimated to affect 16.9 million children under-5, and confers an increased risk of mortality and morbidity. Community Management of Acute Malnutrition (CMAM) programmes have revolutionised treatment for SAM and significantly reduced associated mortality. Community follow-up after discharge from treatment is variable, as links to supplementary feeding programmes are often weak. This review aimed to draw attention to the uniquely vulnerable period of 6–24 months post-discharge that, until now, has fallen through the gap.

Methods Embase, Global Health and MEDLINE were systematically searched with terms related to SAM, nutritional intervention and follow-up between June and August 2017.

Results A total of 3691 articles were retrieved from the search, 55 full-texts were screened and seven met the inclusion criteria to be included in the review. Loss-to-follow-up, mortality, relapse, morbidity and anthropometry were outcomes reported. Between 45.1% and 0.0% of cohorts were lost-to-follow-up. Mortality ranged from 10.4% to 0.6% at an average of 12 months after-discharge. Two studies reported improvement of weight-for-height (WHZ) from discharge to 12 month follow-up, whilst the three studies that reported height-for-age (HAZ) found either limited or no improvement. **Conclusion** This review suggests there is a scarcity of studies that follow-up children for at least 6 months after-discharge. Therefore, there is an urgent need for further follow-up studies investigating a diverse range of outcomes, using control groups and streamlined admission and discharge criteria.

This review has demonstrated that children remain vulnerable to adverse outcomes after discharge from SAM treatment programmes. We must begin to look beyond anthropometric definitions of recovery and the sole focus of reducing mortality. Instead, we should take a holistic view of child nutrition that considers the role of the home and community environment for a complete rehabilitation of these children, and uses CMAM as an opportunity to promote good nutrition and nutritional practices in children for life.

G444(P) MEDICAL STUDENTS EMBRACING CHANGE: HOW DO WE LEARN FROM LESSONS OF THE PAST TO BE GREAT DOCTORS OF THE FUTURE?

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10.1136/archdischild-2018-rcpch.433

In order to improve clinical practice in the future we have to learn from our past. The issues discussed at the inaugural Great Ormond Street Hospital Advances in Paediatrics Conference 2017 were current and pressing and should be dealt with now to raise the bar of healthcare in the UK. As medical students, we considered the salient messages from this conference and discuss how to apply them to our future training.

Staff were frank and honest about where paediatric medicine was heading. They alluded to mistakes made allowing for reflection and open discussion, whilst suggesting changes we hope would make us more rounded paediatricians.

Key themes that shaped the inquisitive, open mind-set that medical students should have throughout their training and beyond were highlighted. Three points seemed especially important: having a realistic perspective on the 'crisis of the NHS', awareness of the lack of transparency in clinical research and the advancement of technology and associated impact on patient-centred care. If we are able to address some of these issues it might help to not only maintain but also raise the standards of healthcare that we can provide.

Overall, we feel that by embracing change, especially at the beginnings of our education, we can overcome miscalculations made by our predecessors. It is easier to have the right attitude ingrained in you from the start than it is to alter one already set in stone. By shifting focus to patient-centred care we can put patients and families back in the driving seat of their own health. Changes supporting openness in clinical trials approach can ensure that patients are not harmed by poor clinical decisions based on research misconduct and publication bias. To be great future doctors we must be receptive to changes going on around us. Technology is revolutionising medicine; we should embrace it and adapt it into our practice to provide the best care. As Professor Tony Young—Head of NHS Innovation England—said, this will enable the clinicians of now and the future to be 'advisors and navigators' and not just 'gatekeepers to medicine.'

British Paediatric Respiratory Society and British Society for Paediatric and Adolescent Rheumatology

G445 PHYSICAL AND PSYCHOLOGICAL ADAPTATION TO IMPAIRED LUNG FUNCTION IN CHILDREN AND YOUNG PEOPLE WITH SCOLIOSIS

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10.1136/archdischild-2018-rcpch.434

Aims Scoliosis may impair both lung function and exercise capacity. There is some evidence to suggest lung function is positively correlated with exercise capacity, however the exact relationship between these variables is poorly defined. This study investigated the relationship between exercise variables and lung function in children and young people with scoliosis, looking particularly at whether patients show evidence of improved physical conditioning despite impaired lung function. **Methods** Retrospective analysis of data from Spirometry [FEV1, FVC], Whole Body Plethysmography, Cardiopulmonary Exercise Testing [CPET] and patient outcome questionnaires (SRS-22) undertaken prior to spinal fusion. CPET measures included maximal exercise capacity [VO2peak] as well as VO2 at anaerobic threshold [AT] expressed as %predicted VO2max—a measure of physical conditioning, and minute ventilation [VE] from which breathing reserve [BR] could be calculated. Analyses were performed using SPSSv23, and correlations expressed using Pearson's correlation co-efficient.

Results Data were collected for 51 patients (63% female; mean age at surgery 14.7 years). Diagnoses included adolescent (62.8%), juvenile (7.8%) and infantile (5.9%) idiopathic scoliosis, congenital (7.8%) and syndromic scoliosis (2%) and Scheuermann's kyphosis (13.7%). Mean ($\pm$ SD) thoracic curvature was $61.3 \pm 15.2^\circ$, and mean kyphosis in those with Scheuermann's was $92.4 \pm 7.3^\circ$. No correlation was elicited between FEV1 or FVC (%predicted) and VO2peak(%predicted). Greater thoracic curves were associated with lower FEV1(%predicted), $r = -0.45$, $p = 0.02$, smaller total lung capacity ($r = -0.47$, $p = 0.002$) and lower BR at the end of exercise ($r = -0.57$, $p < 0.0001$). There was a positive correlation between FEV1(%predicted) and BR ($r = 0.65$, $p < 0.001$) and a negative correlation between FEV1 and VO2 at AT ($r = -0.37$, $p = 0.008$). Those with higher VO2peak measures also had higher VO2 at AT ($r = 0.78$, $p \leq 0.001$). SRS-22 scores correlated significantly with VO2peak(%predicted) (total SRS-22 vs VO2peak(%predicted), $r = 0.50$, $p = 0.006$).

Conclusion Contrary to previously published data, those with larger thoracic curves and therefore poorer lung function show improved exercise capacity and later onset AT, likely as a consequence of improved physical conditioning. These patients also report better quality of life, which may be due to maintenance of normal exercise levels. These findings suggest that physical adaptation occurs in scoliosis with impaired lung function, and that this may be protective to patients' mental health.

G446

HIGHLY ELEVATED FERRITIN LEVELS ARE ASSOCIATED WITH HAEMOPHAGOCYTIC LYMPHOHISTIOCYTOSIS – ARE WE MISSING TREATABLE DIAGNOSES? A RETROSPECTIVE SERVICE EVALUATION OF DIAGNOSIS IN PATIENTS WITH FERRITIN $>10,000 \mu\text{g/L}$

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10.1136/archdischild-2018-rcpch.435

Background Haemophagocytic lymphohistiocytosis (HLH) is a hyperinflammatory syndrome which can complicate sepsis, malignancy or autoimmune disease and may lead rapidly to critical illness and death. Early treatment reduces mortality but diagnosis requires a high index of suspicion and correct interpretation of laboratory results. Highly elevated ferritin levels (HEF) $>10,000 \mu\text{g/L}$ are highly specific for HLH and should prompt consideration/exclusion of hyperinflammation. Diagnostic guidelines for HLH were published in 2004 requiring the presence of $\geq 5/8$ criteria.

Aim To assess recognition of HLH in a paediatric population with HEF.

Methods This retrospective study was conducted at 8 UK centres. Biochemistry databases identified patients ≤ 16 years with serum ferritin $>10,000 \mu\text{g/L}$ between 01.04.2014 and 31.03.2017. A standardised proforma was used to collect data. Cases were assessed against the 2004 HLH criteria. Due to limited access to some laboratory tests, modified criteria using

a threshold of $\geq 4/5$ (excluding tissue haemophagocytosis, decreased natural killer cell function, increased soluble interleukin-2 receptor) were also applied.

Results Ninety-four patients (60.6% male) were identified. 36% were aged <1 year, 16% 1–5 years, 34% 6–12 years and 14% 13–16 years. Management was in neonatal/paediatric intensive care in 49.4%. Diagnoses included: infections (29.8%), malignancies (21.3%), rheumatological (13.8%), immunological (9.6%) and cardiac surgery (6.4%). A diagnosis of HLH was made by the treating clinical team in 30.9% and considered in the differential in a further 18.1%. Just 5 patients had complete data available to score against all 8 2004 HLH criteria whereas 49 patients had data to score against the modified criteria. Using all available data:

- 14/94 (14.9%) met $\geq 5/8$ criteria and all these patients were diagnosed with HLH by the treating team.
- 33 (35.1%) met $\geq 4/5$ criteria and 17 (51.5%) of these were diagnosed with HLH by clinicians. HLH was not documented as being considered in the differential in 11 (33.3%)

Overall mortality was 33.0% (31/94) but was 17.2% (5/29) in those patients diagnosed with HLH during their admission.

Conclusion Although HEF is highly specific for HLH, the diagnosis was made or considered in just half of paediatric patients with this laboratory result. Increased awareness of this potentially-lethal condition is likely to lead to earlier treatment and reduced mortality.

Acknowledgements The following authors also contributed to this work – EL Long and F McErlane, Department of Paediatric Rheumatology, Great North Children's Hospital, Newcastle upon Tyne, UK, K McLellan, Department of Paediatric Rheumatology, Royal Hospital for Children, Glasgow, UK, K Gallagher and P Bale, Department of Paediatric Rheumatology, Addenbrooke's Hospital, Cambridge, UK, K Mahmood and C Pain, Department of Paediatric Rheumatology, Alder Hey Children's Hospital, Liverpool, UK

G447

THE CROSS-SECTIONAL AND LONGITUDINAL ASSESSMENT OF THE EFFECTS OF NURSERY ATTENDANCE AND BREASTFEEDING ON RESPIRATORY SYMPTOMS AND THEIR IMPACT ON QUALITY OF LIFE IN THE FIRST 22 MONTHS OF LIFE- RESULTS FROM THE LIVERPOOL BABY BREATHING STUDY

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10.1136/archdischild-2018-rcpch.436

Aims To determine the effects of breastfeeding and nursery attendance on respiratory symptoms and quality of life related to respiratory symptoms in infants from Liverpool over the first 22 months of life.

Methods The Liverpool Baby Breathing Study (LBBS) uses a parent completed respiratory symptom questionnaire, to assess respiratory symptoms in infants from four to twenty-two months of age. Infants were recruited from the Liverpool Women's Hospital between 23/01/2013 and 03/11/2014. Questionnaires were sent to participants at four, ten, sixteen and twenty-two months of age via post or an automated emailing system. The cross-sectional analysis of the LBBS was weighted to ensure the cohort's index of multiple deprivations was comparable to the eligible births. χ^2 , Mann-Whitney U and