G290(P) RESPIRATORY COMPLICATIONS FOLLOWING TRACHEO-OESOPHAGEAL FISTULA (TOF) REPAIR

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The awareness of respiratory complications post TOF repair is variable. Due to abnormal airway epithelium and impaired muco-ciliary clearance, this group are vulnerable to lower respiratory tract infections (LRTIs) and recurrent wheezing which can lead to bronchiectasis if left untreated.

To evaluate respiratory complications in this vulnerable group of patients, a retrospective analysis of patients diagnosed with TOF between 2009 and 2019 was carried out in a tertiary centre. Patients up to the age of 16 years of age who remained under local paediatric follow-up were included in analysis.

A total of 36 patients were identified. 61% were male with a mean age of 7.2 years (range 1.9 to 15.3 years). The average age of respiratory referral was 2.79 years with cough the commonest reason (table 1). The referrals came from multiple sources as outlined in table 2. Tracheomalacia was diagnosed in 9/36 (25%), asthma in 6/36 (17%) and VIW in 2/36 (6%) patients. The average number of chest x-rays in the first month of life was 9.8. 7 patients had more than 10 performed. In this group, there was a higher incidence of paediatric respiratory problems with 4 admissions to PICU requiring non-invasive support for LRTIs or acute wheeze. Moreover, there were 10 hospital admissions with LRTIs in this group compared with 15 in the whole group. Only 1 child was extremely preterm (born less than 28 weeks' gestation) and 1 had a diagnosis of chronic lung disease, suggesting this group was at increased risk for TOF complications rather than prematurity.

Abstract G290(P) Table 1 Reason for respiratory referral

Reason for referral	Number of patients
Cough	10
Breathlessness	2
VIW	2
Other (abnormal chest x-ray, low sats)	2

Abstract G290(P) Table 2 Mode of referral

Referrer	Number of patients
Surgical	6
ENT	1
Primary care	1
ED/acute admissions	3
Other	3

It is important that health professionals who follow-up patients are aware of the respiratory complications of TOF and need for close monitoring and referral.

G291(P) OUTCOME OF PRETERM INFANTS DISCHARGED ON HOME OXYGEN- RETROSPECTIVE STUDY

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Aim We studied the short- and long-term outcome of babies in three-way comparison between babies (<32 weeks) discharged from two level three units with different home oxygen saturation policy and babies discharged without home oxygen (<32 weeks).

Methods *Units' practice:* 'Oximetry pass' is defined as Infants having oxygen saturation levels >94% at least 90% of the times in Unit1 and having oxygen saturation >90% for at least 95% of the time in Unit2. We defined 'developmental issue' as infants with score of <70 in any of the domains or infants with diagnosis of Cerebral palsy or global developmental delay. Audit approval was obtained from the local hospital.

Results We had a total of 59 babies from each unit who were discharged on home oxygen and 104 babies discharged without home oxygen, from 2012 to 2017. There is no difference between the two units in any respiratory outcome. Number of readmissions due to respiratory illness and duration of hospital stay during readmission is not different between three groups.

In the post-Hoc analysis, there is no difference in any of the respiratory, clinical outcomes and Bayley scores in babies discharged on home oxygen from both the units. Babies from Unit-2 continued to be on home oxygen for a longer period than babies discharged from Unit-1 (Mean diff: 11.9 ± S.E 3.7 weeks; p<0.001).

Following factors had significant correlation Home oxygen unit-1, Home oxygen unit-2, No home oxygen group, Birth weight, Gestation, Ventilation days and other variables. To test the hypothesis that Bayley score in all three domains and developmental issues is a function of above-mentioned variables, a stepwise multiple regression analysis was performed. Only ventilation days were significantly associated with BSID in all three domains (Adj R² of 0.25, p<0.001 in motor; 0.16, p<0.001 in cognition; 0.09, p<0.002 in speech) and ROP requiring treatment with any developmental issues (Adj R² of 0.14, p<0.001).

Conclusion Discharging babies on home oxygen and discharging on home higher oxygen saturation target did not offer any benefits in short- and long-term outcomes. Duration of ventilation and ROP requiring treatment is negatively associated with BSID scores and developmental outcome.

G292(P) SURVEILLANCE OF SLEEP DISORDERED BREATHING FOR YOUNG CHILDREN WITH DOWN SYNDROME WITHIN A GEOGRAPHICALLY-DEFINED AREA

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Aims Our Children's Hospital Down syndrome service cares for all young children with Down syndrome within the County boundary. Children with Down syndrome are at risk of sleep

disordered breathing. Guidelines recommend overnight oximetry in infancy and annually until the ages 3–5 years.

To audit adherence to guidelines regarding surveillance of sleep disordered breathing. To estimate the prevalence of sleep disordered breathing, severity and requirement of intervention within our population.

Methods We undertook a retrospective case note audit of children cared for within the Down syndrome service 2010–2019. Studies undertaken outside of the surveillance period (older than 5 years) were not included.

Results 102 children, aged between 27 days and 5.8 years, underwent 343 overnight oximetry studies (range 1–11 studies per child). Comorbidities included congenital heart disease (62); pulmonary hypertension (12); prematurity (8); airway abnormality not including adenotonsillar hypertrophy (10). Only two children did not have a significant comorbidity.

41 children had a study suggestive of sleep disordered breathing. 18 children underwent adenotonsillectomy. Three children required tracheostomy and invasive ventilation. 4 received non-invasive ventilation. 16 children did not have a study (of whom 9 moved out of area).

Conclusion The guidelines were followed in 93% of cases. The proportion of children with significant comorbidities was high. One third of children in this group had sleep disordered breathing of whom over half required significant intervention.

G293(P) FINDING A NEW APPROACH TO WEANING HIGH FLOW NASAL CANNULA OXYGEN (OPTIFLOW™)

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Background Optiflow™ is widely used throughout paediatric wards and emergency departments. There is currently a lack of evidence-based guidance for weaning this and our trust's protocol is based on a rigid regime suggested by our network's PICU. In undertaking this audit we wanted to i) gauge what weaning approach we currently take, ii) track the outcomes of patients on Optiflow™, and iii) assess whether certain patient characteristics impact weaning approach.

Method Retrospective notes analysis; data from medical notes was collected onto standardised proformas over a 3 month period. The weaning approach was compared to the current trust guidance ('standard') for the outcomes; duration of Optiflow™ and length of stay (LOS).

Results 62 patients were identified. 18 were excluded, leaving 44 patients for analysis. The main indication for Optiflow™ was bronchiolitis (25). The predominant age groups were 1–3 months (13) and 1–3 years (13). The average duration of Optiflow™ therapy was 39 hours when the standard was adhered to, 32 hours when the Optiflow™ was stopped without weaning and 58 hours when any other approach was taken. The average LOS was 5.1 days when the standard was adhered to, 3.6 days when Optiflow™ was stopped immediately, and 5.7 days when any other approach was taken.

Conclusion There was no consensus regime to wean Optiflow™ in our department. Whilst we cannot assign causality, both duration of Optiflow™ and LOS were shortened in the patient group that did not wean but rather stopped immediately. This may have been due to certain patient characteristics in that these patients may represent a cohort of patients with less severe illness. Other characteristics (age less than 6

months, certain co-morbidities and an initial pH <7.2) were found to be associated with increased severity of illness and escalation of care.

We suggest that a rigid weaning protocol is not always appropriate, and we recommend risk stratification of Optiflow™ patients so quicker weaning can take place in lower risk groups. We have undertaken a quality improvement project to rewrite the trust guidance for weaning Optiflow™ and will re-audit after its implementation.

G294(P) CHRONIC SUPPURATIVE LUNG DISEASE IN CHILDREN – CLIMBING THE HILL AND SEEING THE MOUNTAIN BEYOND

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Chronic suppurative lung disease (CSLD) describes a range of lung diseases characterised by chronic productive cough, compromised airway clearance and poor long-term health. Evidence is still sparse regarding the best quality of care for this orphan paediatrics disease. We aimed to characterise a cohort of children to refine the definition of CSLD, provide epidemiological evidence on possible risk factors and optimise diagnostic and management pathways.

CSLD patients (age 0–16) were identified from tertiary paediatric respiratory outpatient clinics between 01/2009 and 06/2019. A database including medical and social history, investigations and treatments was established. Anonymised data were further analysed using Microsoft Excel and an original MATLAB code. An intensity map of the regional prevalence of CSLD was built, based on the postcode area of residency of patients and linked to an index of multiple deprivation.

110 children were identified (n=62, 56% male). Most patients initially presented with chronic wet cough (n=63, 57%) and final diagnoses included non-CF bronchiectasis (n=36, 33%), protracted bacterial bronchitis (n=20, 18%), and primary ciliary dyskinesia (n=7, 6%). 42% (n=46) had no identified unifying diagnosis apart from the umbrella term CSLD. Exposure to smoke was not recorded in 41% (n=45) of cases.

Oral Co-Amoxiclav was prescribed for exacerbations in 83% (n=91) of cases and nearly half received a 2-week course (47%, n=52), 39% 4-week (n=43), 9% (n=10) no data available). Long-term prophylactic azithromycin was prescribed in 69% (n=76) of cases and out of the only 21 resolved cases, 62% (n=13) used azithromycin. Physiotherapy was recommended in 76 cases (69%), with 24 (32%) using mucolytic agents, nearly half (n=13) using DNase.

67% of patients were on the least deprived end of the socioeconomic spectrum. Certain postcode areas showed significantly higher prevalence.

Inconsistencies in history-taking of potential risk factors were observed. Azithromycin and DNase were frequently used despite some international guidelines suggesting otherwise. Our data could not confirm CSLD as a disease of poverty although bias in access to healthcare may be a limitation. Variation in postcode prevalence needs further exploration and may be linked to air pollution. The cohort study provides vital data for further observational studies and highlights the need for clinical trials on CSLD.