P541 INTRODUCTION OF HIGH-FLOW NASAL CANNULA OXYGEN IN BRONCHIOLITIS MANAGEMENT: A UK DISTRICT GENERAL HOSPITAL PERSPECTIVE

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Background/aim High-flow nasal cannula oxygen (HFNCO) has becoming increasingly used as a respiratory support in children with bronchiolitis. We aimed to evaluate the clinical characteristics, course and outcome of infants on HFNCO since its introduction in a DGH.

Methods This was a single-centre retrospective study of infants with clinical diagnosis of bronchiolitis on high-flow nasal cannula oxygen between September 2016 and January 2019. The clinical characteristics of these infants were evaluated. Their clinical course during therapy and outcome were analysed.

Results Twenty-two infants with bronchiolitis received HFNCO therapy over the study period. The age of the infants ranged between 1 week and 11.9 months. Comorbidities included prematurity, chronic lung disease, cystic fibrosis and trisomy 21. The commonest indications for its use were severe respiratory distress and pCO₂ greater than 7.5 kPa. Chest radiograph and blood gas analysis were performed in all patients prior to commencement. The median start and maximum flow rates were 1.55 (range: 0.8–3.7) and 1.75 (range: 1–3.7) L/kg/min respectively. The mean time of improvement in work of breathing and heart rate was 2.06 (SD. 0.81) hours. The median length of therapy was 3.2 (range: 0.25–9.4) days. Treatment failure was recorded in 27% of cases; with transfer to tertiary centre. At least a comorbidity was present in 83% of treatment failure cases. All but one of the treatment failures were intubated. There were no adverse events or mortality in the study group.

Conclusions HFNCO has shown significant benefit in the management of moderately severe bronchiolitis since its introduction in this DGH. It can be safely applied in the emergency department or on the general paediatric wards. Infants with comorbidities presenting with bronchiolitis may require early escalation to HFNCO to reduce treatment failure.

P542 RSV PROPHYLAXIS FOR PREVENTION OF RECURRENT CHILDHOOD WHEEZE: A SYSTEMATIC REVIEW

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Introduction RSV-related lower respiratory tract infection (LRTI) has been associated with greater risk of recurrent wheezing and subsequent asthma. However, it is still unclear whether severe RSV infection is casual or rather has a shared susceptibility with asthma. There is an increased risk of asthma in those born late preterm. Palivizumab, a RSV-specific monoclonal antibody, reduces RSV-related hospitalisations in high-risk infants, but the longer term follow up has given conflicting evidence for the prevention of recurrent wheeze or asthma.

We aimed to perform a systematic review and metanalysis to determine whether RSV prophylaxis (Palivizumab) reduced the risk of subsequent recurrent wheeze and asthma

development. If prophylaxis (Palivizumab) reduces later wheeze/asthma risk, this would support the association between RSV and asthma as causative and might suggest that late preterms should also be offered prophylaxis (Palivizumab).

Methods An electronic advanced literature search was carried out across 4 main databases; Medline, Pubmed, Embase, Web of Science, and the Cochrane Library. The intervention being investigated was monoclonal antibody RSV prophylaxis and the outcome measured was recurrent wheeze/asthma development. Papers were screened to include primary studies of all study design type. Eligible studies were assessed for bias using the GRADE approach by 3 independent reviewers.

Results The overall meta-analysis was comprised of 7 studies (preterm birth N=5, follow-up >2 years N=5)), including randomised controlled trials (N=2), cohort/case control studies. Most studies were graded as having low quality evidence, due to the risk of bias, particularly reporting bias, as well as heterogeneity and inconsistency in baseline participant characteristics. Using a random effects model, the relative risk (RR) was 0.53 (95% CI 0.25–1.09, p = 0.085). Although not statistically significant, this effect size is clinically significant in favour of Palivizumab reducing risk of recurrent wheeze. Consistent with the overall results we found a similar effect when subgroups of late-preterm or those followed for longer than 2 years were examined.

Discussion Although the results are not statistically significant, we found in this meta-analysis a clinically important reduction in RR. This supports the hypothesis that RSV prophylaxis reduces the risk of subsequent wheeze/asthma, demonstrating a potential causal relationship. Further studies are needed into the cost-effectiveness of RSV prophylaxis to prevent recurrent wheeze/asthma in late preterm births.

P543 PAEDIATRIC DEATHS DUE TO ASTHMA IN IRELAND 2006–2016

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Background Prevalence of asthma in children is estimated at 26% in Ireland.¹ Although asthma is common a child dying from asthma is a rare occurrence. It is unclear why certain children die from asthma. A review of asthma deaths in the UK² identified areas to improve mortality but no information is available for Ireland.

Aim To review all cases of asthma mortality in the paediatric population over ten years in Ireland. The objective is to identify factors contributing to asthma death.

Method A retrospective chart review was performed on cases reported to the National Paediatric Mortality Register with asthma as the primary cause of death.

Results Thirteen cases were reported between 2006–2016. Two cases were excluded as age >16 yrs at time of death. Consent was obtained for six cases. Median age at death was 11.8 yrs. All patients were in asystole on arrival in

Emergency Department (ED). 50% (3/6) of patients had acute symptoms prior to the fatal episode. None of the patients were attending secondary/tertiary services at the time of death. 60% (3/5) had a written personalised action plan. 75% (3/4) patients had been reviewed by the GP in the previous six months for an acute exacerbation and all had been prescribed oral steroids.

Conclusion Data suggests that most patients present to ED late, in extremis and with little warning signs of severity of the attack. Identifying those at risk is difficult. Better education on recognition of symptoms and initiation of action plan is required.

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P544 REVIEW OF NON-INVASIVE VENTILATION SERVICE IN AN IRISH PAEDIATRIC CENTRE

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Introduction Non-invasive ventilation represents a major advance in the treatment of acute respiratory failure with well-established clinical utility.

Aim This study aimed to review number, indication and adherence to NIV in an Irish paediatric centre between February 2011 and December 2018.

Methods A retrospective review of pediatric patients requiring non-invasive home ventilation was collected from 2011 to 2018. Adherence was recorded by downloads from the PAP device. 'Adequate' adherence was defined as ≥ 4 h/night for 50% of days

Results Over a period of almost 8 years (2011–2018) there were 97 pediatric patients needed to be started on home NIV for a diversity of medical reasons. 31% were due to non syndromic adenotonsillar hypertrophy, 30% were due to triosomy 21 with upper airway obstruction, 18% were having Prader Willi Syndrome, 15% were having neuromuscular diseases, 6% were due to obesity.

The average age was 11.5 ± 5 years with male: female ratio 1:1.3.

The distribution of the patient according to the type of NIV were 89% on CPAP and 11% on BiPAP.

Of those 97 patients on home NIV, 50% (n=48) were non-compliant with NIV, 42% (n=41) were compliant with NIV, 8% (n=8) were stopped using NIV for different reasons like improvement after adenotonsillectomy, non-tolerance, refusal and for non-clear reasons.

The reasons for non-adherence included, 31% (n=15) were due to refusal, 27% (n=13) were due to intolerance, 17% (n=8) were due to behavioral reasons, same percentage was for the sensory reasons, 8% (n=4) were due to parental issues.

Conclusion In this Irish paediatric cohort (predominantly non-obese), the majority of our patients were on CPAP. The adherence to Bi-level was 73% whereas; it was 33% for CPAP. Adherence issues remains a major challenge in our population despite close monitoring.

P545 EPIDEMIOLOGY AND CLINICAL MANIFESTATIONS OF ACUTE VIRAL RESPIRATORY INFECTIONS IN PEDIATRIC PATIENTS IN UKRAINE

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Background Acute respiratory tract infections (ARTI) in children are the leading cause of morbidity in Ukraine. The role of respiratory viruses in the clinical manifestations of ARTI in children in Ukraine has not been sufficiently studied.

The aim of study

To investigate the etiology of ARTI and compare the clinical features of different virus infections in children during the period from September 2018 to January 2019.

The methods Nasopharyngeal swabs, collected from ARTI children aged 2 months - 16 years, who received outpatient treatment or were hospitalized to Eurolab clinic (Kyiv, Ukraine) were examined. They were screened for 7 respiratory viruses using Multiplex PCRs - *Respiratory Syncytial virus* (RSV), *Parainfluenza virus* (PIV), *Adenovirus* (AdV), *human Metapneumovirus* (hMPV), *Rhinovirus* (RV), *human Bocavirus* (hBoV) and *Coronavirus* (CoV). Although rapid influenza diagnostic test was used.

Results Respiratory pathogens detected in 125 of the 147 (85,0%) samples. *HMPV* was detected in 33 children. Clinical manifestation of *hMPV* infection were: tracheobronchitis - 13, pneumonia - 6, obstructive bronchitis - 7, bronchiolitis - 3, rhinopharyngitis -3, laryngitis -3. *Influenza A* (IVA) was detected in 28 children with ARTI: tracheobronchitis - 13, pneumonia - 6, obstructive bronchitis - 2. Half of children with IVA also have symptoms of rhinopharyngitis. RV was detected in 21 children, 12 of them have symptoms of rhinopharyngitis, 3 - croup and 3 - wheezing, 2 - bronchitis and 1 - laryngitis. Clinical characteristics of others viruses are following: RSV was detected in 10 children, it caused pneumonia (3 cases), obstructive bronchitis (5 cases). *HBoV* was detected in 7 children and caused rhinopharyngitis, laryngitis (6 cases), tracheobronchitis (2), two child had viral exanthema. *AdV* was detected in 5 children and caused rhinopharyngitis with lymphadenopathy in 3 cases, pneumonia in 2 cases. *PIV* during season caused rhinopharyngitis, laryngitis (2 cases), croup (1 case), obstructive bronchitis (1 case). The coinfection percentage was 13, 5%.

Conclusions During epidemic season in Ukraine the most prevalent viruses were *hMPV* -33 (26,3%), *IVA* -28 (22,4%), *RV* - 21 (16,8%). Using Multiplex PCR assay can be helpful in prognosing of probable clinical course of disease, for optimization therapy.

P546 A REVIEW OF THE NURSE-LED MDT CYSTIC FIBROSIS (CF) INFANT CLINIC IN TALLAGHT HOSPITAL

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Background Newborn screening (NBS) for CF offers the opportunity for early intervention and improved outcomes.¹