**Poster sessions**

**Update in paediatric lung disease**

**P79** CHILDREN WITH COMPLEX CONGENITAL HEART DISEASE: WHO NEEDS A PRE-FLIGHT HYPOXIC CHALLENGE TEST?

N Naqui, V. Doughty, L Starling, R Franklin, S Ward, PEF Daubeney, IM Balfour-Lynn. Royal Brompton Hospital, London, UK

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**Introduction** Commercial airplanes fly with an equivalent cabin FiO2 of 0.15 leading to reduced oxygen saturation (SpO2) in passengers. Although evidence-base exist, the evidence-base for recommending supplemental O2 when flying in children with complex congenital heart disease (CHD) is practically non-existent. We conducted hypoxic challenge tests (HCT) to determine which children need a pre-flight assessment.

**Methods** Children<16 years with complex CHD were recruited; exclusions were SpO2 <75%; pulmonary hypertension; oxygen requirement; or concomitant respiratory disease. Children had a standard HCT in a sealed body plethysmograph with FiO2 of 0.15. We measured SpO2, pulse rate, transcutaneous CO2 (PtcCO2), corrected QT interval (QTc), and total Hb by co-oximetry (SpHb). Supplemental O2 was given (which meant a ‘failed’ test) if (1) children with baseline SpO2 <5%–100% desaturated to 85%, (2) or baseline SpO2 <85%–94% desaturated to 15% of their baseline; (3) or baseline SpO2 <75%–84% desaturated to 70%.

**Results** There were 68 children, mean age 3.3 years (range 10 weeks to 14.5 years); 53% were boys. Grouping by normal baseline SpO2 (<75%); pulmonary hypertension; or concomitant respiratory disease. Children had a standard HCT in a sealed body plethysmograph with FiO2 of 0.15. We measured SpO2, pulse rate, transcutaneous CO2 (PtcCO2), corrected QT interval (QTc), and total Hb by co-oximetry (SpHb). Supplemental O2 was given (which meant a ‘failed’ test) if (1) children with baseline SpO2 <5%–100% desaturated to 85%, (2) or baseline SpO2 <85%–94% desaturated to 15% of their baseline; (3) or baseline SpO2 <75%–84% desaturated to 70%.

**Results**

<table>
<thead>
<tr>
<th>PDA</th>
<th>Present</th>
<th>112</th>
<th>180 (117)</th>
<th>0.637 (0.3)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not</td>
<td>45</td>
<td>189</td>
<td>(±150)</td>
<td>0.3</td>
</tr>
<tr>
<td>Medically</td>
<td>39</td>
<td>191</td>
<td>(±107)</td>
<td>0.347 (0.3)</td>
</tr>
<tr>
<td>Surgically</td>
<td>13</td>
<td>168</td>
<td>(±63)</td>
<td>0.3</td>
</tr>
<tr>
<td>Pulmonary Hypertension</td>
<td>19</td>
<td>218</td>
<td>(±186)</td>
<td>0.3</td>
</tr>
<tr>
<td>Absent</td>
<td>124</td>
<td>176</td>
<td>(±101)</td>
<td>0.3</td>
</tr>
</tbody>
</table>

**Abstract P80 Table 1**

**Conclusions** This is the first evidence to help inform which children with CHD need a pre-flight HCT. We suggest all children with residual potential R-L shunt or who have not undergone repair or who have palliative surgery in whom 8/41 (20%) failed (p<0.02). PtcCO2 did not change significantly (i.e., no one hyperventilated to compensate for hypoxia); pulse rate and QTc were not different between groups, and unaffected by the hypoxic state.

**Background** The presence of hemodynamically significant Patent Ductus arteriosus (PDA) is associated with the development and severity of chronic lung disease of prematurity (CLDP). Pulmonary hypertension (PHTN) is also associated with CLDP, may precede and contribute to its development and severity. We explored the relationship between the flow rate as well as the duration of home oxygen therapy (Home O2) (surrogate for severity of CLDP) in children with CLDP and interplay between the presence or absence of PDA, mode of managing PDA as well as PHTN.

**Setting** Tertiary CLDP service.

**Methods** Retrospective observational study All infants (median gestational age 26 weeks, range 23 to 35), born between 2009 and 2016, were included (n=172; 96 males). We excluded data for infants where there were incomplete records for ECHO or loss of follow-up due to management of further care in other centres. The date oxygen was discontinued by following a structured weaning protocol is prospectively recorded to calculate the length of home oxygen therapy. The presence or absence of PDA and if present whether this was medically managed or surgically as well as the presence or absence of PHTN (assessed by echocardiography) was recorded.

**Results**

**Conclusions** In our cohort, there was no significant difference between the duration of home oxygen therapy and the presence or absence of PDA and if present whether it was medically or surgically managed. Similarly, there was no significant difference between duration of home in presence or absence of pulmonary hypertension.

**REFERENCE**


**P80 ASSESSMENT OF ASSOCIATION BETWEEN DURATION OF OXYGEN THERAPY IN CHILDREN WITH CHRONIC LUNG DISEASE OF PREMATURITY (CLDP) AND MANAGEMENT OF PDA**

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10.1136/thoraxjnl-2017-210983.222

**Background** The presence of hemodynamically significant Patent Ductus arteriosus (PDA) is associated with the development and severity of chronic lung disease of prematurity (CLDP). Pulmonary hypertension (PHTN) is also associated with CLDP, may precede and contribute to its development and severity. We explored the relationship between the flow rate as well as the duration of home oxygen therapy (Home O2) (surrogate for severity of CLDP) in children with CLDP and interplay between the presence or absence of PDA, mode of managing PDA as well as PHTN.

**Setting** Tertiary CLDP service.

**Methods** Retrospective observational study All infants (median gestational age 26 weeks, range 23 to 35), born between 2009 and 2016, were included (n=172; 96 males). We excluded data for infants where there were incomplete records for ECHO or loss of follow-up due to management of further care in other centres. The date oxygen was discontinued by following a structured weaning protocol is prospectively recorded to calculate the length of home oxygen therapy. The presence or absence of PDA and if present whether this was medically managed or surgically as well as the presence or absence of PHTN (assessed by echocardiography) was recorded.

**Results**

**Conclusions** In our cohort, there was no significant difference between the duration of home oxygen therapy and the presence or absence of PDA and if present whether it was medically or surgically managed. Similarly, there was no significant difference between duration of home in presence or absence of pulmonary hypertension.

**REFERENCE**


**P81 WHAT IS THE IDEAL TARGET PRETERM POPULATION THAT MIGHT BENEFIT FROM THE EXPENSIVE PALIVIZUMAB PROPHYLAXIS?**

L Tsilika, D Batra, AP Prayle, M Hurley, JM Bhatt. Nottingham Children’s Hospital, Nottingham, UK

10.1136/thoraxjnl-2017-210983.223

**Background** The presence of hemodynamically significant Patent Ductus arteriosus (PDA) is associated with the development and severity of chronic lung disease of prematurity (CLDP). Pulmonary hypertension (PHTN) is also associated with CLDP, may precede and contribute to its development and severity. We explored the relationship between the flow rate as well as the duration of home oxygen therapy (Home O2) (surrogate for severity of CLDP) in children with CLDP and interplay between the presence or absence of PDA, mode of managing PDA as well as PHTN.

**Setting** Tertiary CLDP service.

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**Results**

**Conclusions** In our cohort, there was no significant difference between the duration of home oxygen therapy and the presence or absence of PDA and if present whether it was medically or surgically managed. Similarly, there was no significant difference between duration of home in presence or absence of pulmonary hypertension.
Introduction Palivizumab is a monoclonal antibody that reduces the likelihood of serious respiratory tract infection by Respiratory Syncytial Virus (RSV) in infants with Chronic Lung Disease (CLD) defined as an ongoing oxygen requirement at 36 weeks corrected gestation. In the UK (UK), Palivizumab is offered to high-risk infants with moderate to severe CLD according to their chronological age at the time of RSV season as per Joint Committee on Vaccination and Immunisation (JCVI) guidelines. The American Academy of Paediatrics (AAP), in contrast, recommends Palivizumab prophylaxis for all infants born before 29 weeks’ gestation who are younger than 12 months at the start of the RSV season.

Materials and Methods
We hypothesised that the RSV hospitalisation rate and length of hospital stay (LOS) within the 1st year of life between preterm babies with CLD immunised according to the JCVI criteria (CLDJCVI) and the additional babies who are considered eligible by the AAP criteria would be comparable. Our cohort included babies born in Nottingham UK between 2009 and 2015. Data was collected from hospital records and the Nottingham CLD database, and analysed using Fisher’s exact test for proportions and Mann-Whitney test for continuous data.

Results
In total there were 3478 babies born preterm (<37 weeks GA) in Nottingham UK from 2009 to 2015. 459 babies were born in Nottingham at <29 weeks GA. 245 babies had CLD at 36 weeks corrected GA and 135 of these babies were eligible for Palivizumab (JCVI).

Abstract P81 Table 1

<table>
<thead>
<tr>
<th>Number of babies</th>
<th>Babies immunised according to JCVI criteria</th>
<th>Additional babies who would be eligible by AAP criteria</th>
<th>p Value</th>
<th>Average LOS in days (IQR)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>135</td>
<td>160</td>
<td></td>
<td>10.3 days 6.92 days</td>
</tr>
<tr>
<td>Confirmed RSV hospitalisations</td>
<td>13 (9.6%)</td>
<td>13 (8.13%)</td>
<td>0.68</td>
<td></td>
</tr>
<tr>
<td>Average LOS in days (IQR)</td>
<td>10.3 days</td>
<td>7.3 days</td>
<td>Unable to calculate due to small numbers</td>
<td></td>
</tr>
</tbody>
</table>

Conclusion
The RSV hospitalisation rate and LOS were not statistically different in babies under JCVI criteria and additional babies qualifying by AAP criteria. A larger multi-centre prospective study is required to prove health and economic benefits of adopting AAP Palivizumab recommendations.

P82

COMPARISON OF RSV HOSPITALISATION IN PRETERM INFANTS WITH CHRONIC LUNG DISEASE WHO DO NOT QUALIFY FOR PALIVIZUMAB PROPHYLAXIS WITH THOSE WHO QUALIFY IN NOTTINGHAM, UK

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10.1136/thoraxjnl-2017-210983.224

Introduction Palivizumab prophylaxis reduces the likelihood of serious respiratory tract infection by Respiratory Syncytial Virus (RSV) in ex-preterm infants with Chronic Lung Disease (CLD). The Nottingham CLD service follows the Joint Committee on Vaccination and Immunisation (JCVI) guidelines for Palivizumab prophylaxis based on gestation, respiratory status and chronological age at the beginning of RSV season. This retrospective observational study was conducted to compare the RSV hospitalisations in preterm infants with CLD who are offered Palivizumab to those with milder CLD.

Materials and Methods
We hypothesised that the RSV hospitalisation rate and length of hospital stay (LOS) within the 1st year of life between preterm babies in home oxygen with CLD immunised according to the JCVI criteria and babies with moderate CLD not discharged in home oxygen would be comparable. Our cohort included babies born in Nottingham UK between 2009 and 2015. Data was collected from hospital records and the Nottingham CLD database, and analysed using Fisher’s exact test for proportions and Mann-Whitney test for continuous data.

Results
In total there were 3478 babies born preterm (<37 weeks GA) in Nottingham UK from 2009 to 2015. 245 babies had CLD at 36 weeks corrected GA. 192 of these babies were discharged in Home Oxygen and 135 of these babies were eligible for Palivizumab (JCVI).

Abstract P82 Table 1

<table>
<thead>
<tr>
<th>Number of babies</th>
<th>Babies immunised according to JCVI criteria</th>
<th>Babies with CLD not discharged in Oxygen</th>
<th>P Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>135</td>
<td>53</td>
<td></td>
</tr>
<tr>
<td>Confirmed RSV hospitalisations</td>
<td>13 (9.6%)</td>
<td>3 (5.66%)</td>
<td>0.56</td>
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<tr>
<td>Average LOS in days (IQR)</td>
<td>10.3 days</td>
<td>7.3 days</td>
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</tbody>
</table>

Conclusion
The RSV hospitalisation rate was lower in preterm infants who did not qualify for Palivizumab compared to infants who qualified according to JCVI guideline but this difference was not statistically significant. A large prospective multi-centre study is required to ascertain the clinical and economic benefits of including the wider group for Palivizumab prophylaxis.

P83

RESPIRATORY MORBIDITY AND ASSESSMENT OF RESPIRATORY RISK FACTORS IN SCHOOL AGED CHILDREN WITH SEVERE NEUROLOGICAL IMPAIRMENT

L Thomson, L Gardner, K Sharp, P Davies. Royal Hospital for Children, Glasgow, UK
10.1136/thoraxjnl-2017-210983.225

Introduction
Respiratory morbidity is well documented in children with neurological impairment. Early intervention programmes to identify children at high risk are not well established. We proactively reviewed respiratory status of children with severe neurological impairment in local special schools to identify and manage those at high risk.

Methods
School nurses identified all children with severe neurological impairment (GMFCS IV and V). All had a multidisciplinary respiratory assessment at school. Data was collected on