Update in paediatric lung disease

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

N Naqvi, VL 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 FiO_2 of 0.15 leading to reduced oxygen saturation (SpO_2) in passengers. Although guidelines exist, the evidence-base for recommending supplemental O_2 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 SpO_2 <75%; pulmonary hypertension; oxygen requirement; or concomitant respiratory disease. Children had a standard HCT in a sealed body plethysmograph with FiO_2 of 0.15. We measured SpO_2, pulse rate, transcutaneous CO_2 ($PtcCO_2$), corrected QT interval (QTc), and total Hb by co-oximetry (SpHb). Supplemental O_2 was given (which meant a 'failed' test) if (1) children with baseline $SpO_2$95%–100% desaturated to 85%, (2) or baseline $SpO_2$85%–94% desaturated to 15% of their baseline; (3) or baseline $SpO_2$75%–84% desaturated to 70%.
Results There were 68 children, mean age 3.3 years (range 10 weeks to 14.5 years); 53% were boys. Grouping by normal (≥95%) *vs* abnormal baseline SpO_2(75%–94%), both groups had a significant fall in SpO_2 ($p<0.0001$). 3/38 (8%) children failed with normal baseline SpO_2 *vs* 5/32 (16%) with abnormal baseline (non-significant difference). In terms of cardiac status, both groups had a significant fall in SpO_2 ($p<0.0001$); however in those with no residual for potential R-L shunt 0/27 failed *vs* those with residual potential R-L shunt or who had not undergone repair or who had palliative surgery in whom 8/41 (20%) failed ($p<0.02$). $PtcCO_2$ 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.
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 only had palliative surgery should be tested (as 20% are expected to need supplemental O_2), whereas those with no potential for R-L shunt need not be. Baseline SpO_2 does not help predict who will need supplemental O_2 when flying.

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

A Zafar, S Alifieraki, J Bhatt. *Queens Medical Centre, Nottingham, UK*

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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 managed medically or surgically as well as the presence or absence of PHTN (assessed by echocardiography) was recorded.
Results

Abstract P80 Table 1

		Number of babies (%)	Mean duration Home O2 in days (±sd)		Median oxygen flow rate in litres per minute (IQR)
PDA	Present	112	180 (±117)	p=0.637*	0.3 (0.2–0.5)
	Not present	43	189 (±150)		0.3 (0.2–0.5)
	Medically managed	39	191 (±107)	p=0.547*	0.3 (0.2–0.5)
	Surgically managed	13	168 ((±63)		0.3 (0.2–0.5)
Pulmonary hypertension	Present	19	218 ((±186)	p=0.117*	0.3 (0.2–0.5)
	Absent	124	176 (±101)		0.3 (0.2–0.5)

* no significant difference

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

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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*

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