Peri-Operative Management of Paediatric Obstructive Sleep Apnoea: The Alder Hey Experience

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Background Practice between hospitals, between specialties and between clinicians varies in our local region. As the tertiary paediatric centre, many local centres refer children for assessment of sleep apnoea and subsequent treatment. We wanted to compare our current practice with the trends over the last decade (2008-2018) of papers concerning paediatric obstructive sleep apnoea investigation and management.

We wanted to compare our MDT sleep apnoea investigation and perioperative management with current literature. For the last decade, Americans advocate polysomnography but in the UK, three centres employ MDT with pulse oximetry.

author	year	hospital	psg/pulse ox and extras
e blenke	2008	leeds, hull	pulse ox and MDT with surgeon and anaesthetist to plan overnight stay, comorbidities or severity should be tertiary
P. Robb	2009	RCS working group	pulse ox and day case ok unless comorbidities which need resp assesment referral pre op, provides comorbid list
d schwengl	2009	baltimore, USA	algorithm, recommend pre op PSG, recommend minimum 2hrs post op observation even if low risk
s powell	2010	newcastle, middlesex	pragmatism, even though PSG is gold standard
c marcus	2012	AAP guidelines	PSG recommended preop, severe OSA=overnight stay
p walker	2013	newcastle AUS	comorbidity and respiratory disturbance in REM determines PICU post op
c l marcus	2013	boston, USA	sleep centre PSG
t weinstock	2013	CAT trial USA	pre op PSG and race, i.e. black
l cooper	2013	barts	clinical determination of severity, sleep studies if comorbidities pre op, multiple comorbid or severe OSA for overnight stay only
m pringle	2013	portsmouth	refer comorbidities to tertiary centre <1% PSG
k lightbody	2014	alderhey	recommend pulse ox and anaesthetist mdt to determine hdu bed post op
a thongyam	2014	philadelphia, USA	pre op PSG and clinical judgement, recommend post op PSG if kept overnight too due to 1/5 needing intervention
e alexopoulos	2014	athens, greece	recommend PSG
w.qubty	2014	Rochester USA	PSG preop but if under 1<multidisciplinary team including geneticists
h kanona	2015	Romford	if high risk then refer tertiary, if normal pulse ox can stay and no need for post op pulse ox
a Tang	2016	cincinnati, USA	non-tonsillar hypertrophy only
l.y.zhang	2017	brisbane, AUS	does not discuss pre-op
d wu	2017	shenyang, china	recommends psg or clinical exam findings
r.p.venekamp	2017	UCL	metanalysis- what is role and interpretation of psg or pulse ox or ambulatory sleep study, or sleep nasendoscopy or home recording?
r harrison	2017	manchester	advice for GPs to refer
r cheong	2017	brighton	pre op pulse ox and mdt with anaesthetist
sharma	2018	romford	25% PSG, 84% pulse ox

Method We conducted a 10-year literature review of English language papers. Pubmed and Google scholar searches were conducted independently by both authors. Duplicates and papers without reference to pre-operative assessment were excluded. 22 Papers were selected for further analysis. The content and nature of these papers was heterogeneous and precluded in-depth statistical metanalysis, however we attempted to derive a narrative global consensus for perioperative assessment and management and compare this with our own tertiary centre management pathway.

Results

American centres all advocated for polysomnography but 3 UK centres, including our own, advocate for a preoperative MDT held in conjunction with anaesthetists to determine postoperative bed requirements.

Many centres have suggested pragmatic adoption of pulse oximetry as this is best available practice, despite clinical equipoise over sensitivity and specificity.

ESPO 2018 Consensus? Of 863 posters presented; 16 posters discussed research on OSA that wasn't in our lit. review. Four were not relevant to preop assessment or didn't clarify what sleep study was performed, Six centres advocated for Polysomnography, one specifically for Down's syndrome, one in patients that were obese, Four additional centres described pulse oximetry only, with consideration of co-morbidities, and 3 centres encouraged use of the OSA-18 questionnaire.

Alder Hey pathway

Discussion This review demonstrates that although the number of papers is increasing there is still heterogeneity in practice and most clinicians adopt pragmatic best practice for assessing sleep apnoea peri-operatively. We recommend our pathway, which has led to less unnecessary, unplanned bed days and less unplanned admissions to HDU.

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