

Postoperative hypoxemia after transport from Operating Theatre to Post Anaesthetic Care Unit: Identifying incidence and risk factors in children

Dr. Teddy S. Fabila,
Dr. Shahani Jagdish Menghraj,
Department of Paediatric Anaesthesia

Introduction

Healthy patients are frequently allowed to breathe room air during transport from Operating Theatre (OT) to Post Anaesthetic Care Unit (PACU) without oxygen supplement and continuous pulse oximetry monitoring. However postoperative hypoxemia immediately after transport occurs commonly in adult studies, and only few reports for paediatric population.

Objectives

The investigators of this study aims:

1. To determine the incidence of hypoxemia after transport of paediatric patients after general anaesthesia (GA) from OT to PACU.
2. To identify factors that can be correlated with postoperative hypoxemia after transport.

Methodology

- This prospective audit was conducted over the period of one year (2013).
- The authors included 1000 children ages 0-17, ASA I, II, and III; who underwent surgery under GA and transported to PACU for recovery.
- The last recorded SpO₂ in OT and the first in PACU were transcribed. The SpO₂ was classified as normal ($\geq 95\%$) and hypoxemia ($< 95\%$).
- Variables that can relate to hypoxemia during transport were recorded: type of surgery, patients' position during transport, technique of removing the airway device, distance of OT to PACU, and length of time from the last SPO₂ monitoring in OT and first in PACU.
- Results were expressed as mean \pm SD and number of patients/percentage. Statistical correlation was determined using the Pearson's and the t-test for level of significance verification. A p-value of less than 0.05 was considered significant.

Results

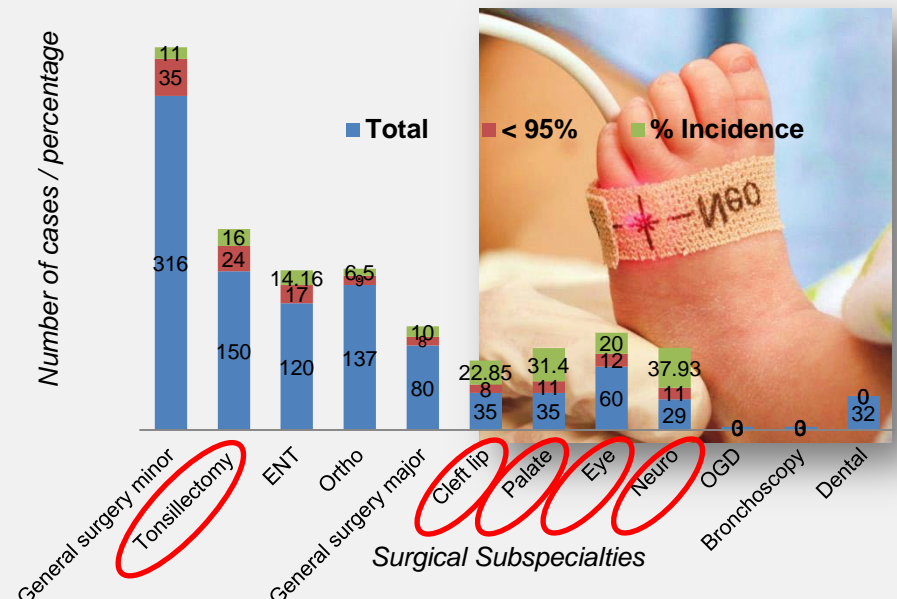
- The SpO₂ level was normal in 865 patients (86.5%) while 135 (13.5%) developed hypoxemia.
- The **incidence of 13.5 % hypoxemia ($< 95\%$)** of our paediatric audit is lower than to what was reported by similar studies that includes adult population.
- The **mean SPO₂ of $97.18 \pm 3.86\%$** on arrival in PACU observed in this study is similar to that previously reported.

Clinical risks factors to Hypoxemia ($<95\%$)

Hypoxemia was mainly noted in patients belonging to ASA class II N=71 (52.6%)

Co-morbidities	N	%
Obstructive sleep apnea	18	25.35
Bronchial asthma	17	23.9
Recent respiratory infection (< 2 weeks)	16	22.53
Allergic rhinitis	15	21.13

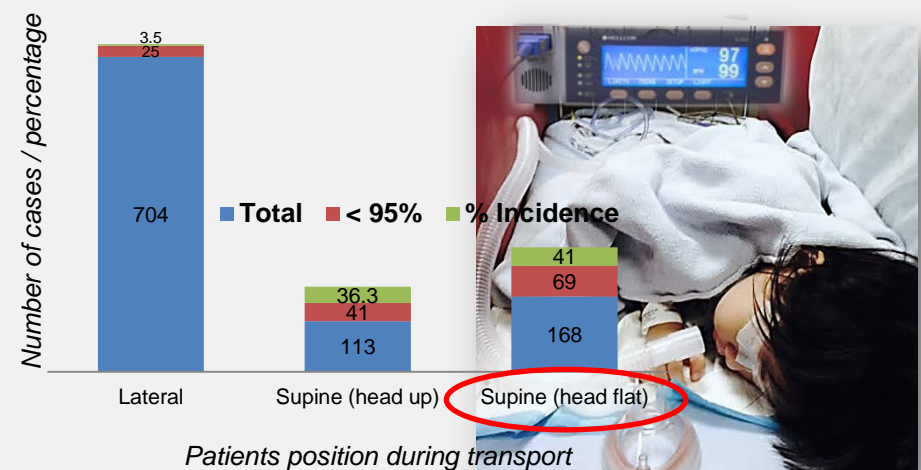
Incidence of hypoxemia ($<95\%$) among surgical subspecialties



Correlation of Hypoxia ($<95\%$) to Anaesthetic Technique

Anaesthetic Technique	Pearson's R	Interpretation	p value
Choice of Extubation (awake or deeply asleep)	0.139	No correlation	0.267
Laryngeal Mask Airway removal (awake or deeply asleep)	0.112	No correlation	0.356
Distance of travel (OT to PACU)	0.037	Weak correlation	0.136
Length of time from the last SPO ₂ monitoring in OT and first in PACU	- 0.078	Negative correlation: Increase time difference leads to hypoxia	0.067

Patients transport position (OT to PACU) and hypoxemia ($<95\%$)



Conclusion

Postoperative hypoxemia immediately after transfer from OT to PACU occurs in 13.5% of the 1000 audited paediatric cases. Transportation time and position of patients with associated clinical and surgical risks factors, determines the incidence of postoperative hypoxemia.