

[OS2-90] Incidence and Risk Factors of Apnea in Infants Undergoing Inguinal Hernia Repair Under General Anesthesia

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Introduction: Incidence of apnea in infants undergoing anesthesia for hernia repair has been reported at 0- 40% with recent studies (small pt poulations) of 4.(ref 1-3) Our incidence in a larger population and risk factors are reported.
Methods: We identified 552 infants with a post-conceptual age (PCA) \leq 56 weeks who had hernia repair under sevoflurane/isoflurane between 1996 -2005. Episodes of apnea, bradycardia, and desaturation were recorded in a database in a prospective manner. Demographic data, past medical history, anesthetic drugs and post-op care were extracted from the past and present medical and anesthesia records. The incidence of possible risk factors between infants who experienced apnea and those that did not were compared using a two tailed Fisher's exact test or a two tailed Mann Whitney U test with statistical significance set at $P < 0.05$.

Results: Incidence of post-operative apnea was 3.8%. Infants who experienced apnea had a significantly lower gestational age (GA) and PCA compared with infants who did not experience apnea ($P < 0.05$). Infants ASA PS 3-5 had a significantly higher rate of apnea than infants ASA 1- 2 ($P < 0.05$). Infants with apnea were more likely to have a history of apnea and respiratory disease, have pre-op intubation and ventilation, and O2 requirement compared to infants who did not experience apnea ($P < 0.05$). No significant differences were found between groups with respect to narcotics, induction, maintenance anesthetic, caudal anesthesia, or neuromuscular blocking drug (NMBD).

Conclusions : Infants (PCA < 56 wk) had a 3.8% incidence of post-op apnea. Risk factors include PCA, GA at birth, history of apnea, respiratory disease, and ASA physical status. In addition the following were not associated :narcotics, sevo-isoflurane , caudal block and NMBD.

References:

1. Lee SL, Gleason JM, Sydorak RM. A critical review of premature infants with inguinal hernias:optimal timing of repair, incarceration risk, and postoperative apnea. Journal of Pediatric Surgery 2011;46,217-220.
2. Murphy JJ, Swanson T, Ansermino M, Milner R. The frequency of apneas in premature infants after inguinal hernia repair: do they need overnight monitoring in the intensive care unit? Journal of Pediatric Surgery 2008;43:865-868.
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Table 1. Comparison of demographic data

	Apnea (n = 21)	No Apnea (n=531)	Statistical Significance
Sex	16 male / 5 female	443 male / 88 female	*N.S. p=0.375
Weight at surgery (kg)	2.9 \pm 0.8 (1.65—4.5)	4.5 \pm 1.3 (0.85—9.2)	#p<0.05
Post-Conceptual Age	41.5 \pm 3.0 (36.2—48.3)	46.1 \pm 4.9 (28.9 – 55.9)	#p<0.05
Gestational age	27.5 \pm 2.9 (24 – 34)	34.3 \pm 5.0 (23—40)	#p<0.05

Table 1. [mean \pm std (range)]

#Mann-Whitney U test (2 tailed)

*Fisher's exact test (2 tailed)

Table 2. Comparison of preoperative risk factors (n=552)

	Apnea (n = 21)	No Apnea (n=531)	Statistical Significance
Preop ventilation	15/21 (71%)	120/531 (22%)	*p<0.05
Preop O2 requirement	10/21 (47%)	79/531 (15%)	*p<0.05
Preop pulmonary disease	16/21 (76%)	141/531 (27%)	*p<0.05
Preop apnea	16/21 (76%)	85/531 (16%)	*p<0.05
Preop bronchospasm	1/21 (4%)	20/531 (4%)	*N.S. p=0.564
Preop abnormal airway	0/21	1/531 (0.2%)	*N.S. p=1.000
Preop laryngomalacia	1/21 (4%)	4/531 (0.8%)	*N.S. p=0.177
Preop stridor	1/21 (4%)	3/531 (0.6%)	*N.S. p=0.144
Preop newborn intubation	8/21 (38%)	57/531 (11%)	*p<0.05
History of patent ductus arteriosus	0/21	3/531 (0.6%)	*N.S. p=1.000
History of intraventricular hemorrhage	0/21	12/531 (2%)	*N.S. p=1.000

*Fisher's exact test (2 tailed)