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Minimal exhaled nitric oxide production in the lower respiratory tract of healthy children aged 2-7 years

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Elevated Exhaled Nitric oxide (eNO) has been demonstrated in inflammatory airway conditions e.g. asthma. This study has measured eNO levels in normal preschool children for whom there is little data available and in whom the prevalence of asthma is high. Fifty children, 2-7 years old, undergoing elective surgery, excluding airway procedures, were recruited. Children with known respiratory disease or acute viral infections were excluded. Gas for eNO measurement was collected in a non-diffusion bag: 1) Via the mask after inhalation induction of anesthesia 2) Via endotracheal tube (ETT) or laryngeal mask airway (LMA). 3) During emergence. Measurement was off-line by chemiluminescent analyzer. Mean eNO level by mask was 10.23 ppb (mean value±SD 8.8-11.1 ppb) after induction and 8.35 ppb (mean value ± SD 5.9-10.8 ppb) on emergence. Mean eNO for the intubated group (n=25) was 0.75 ppb (mean value±SD 0.4-1 ppb) (p<0.0001 vs mask); mean eNO for LMA group (n=25) was 2.6 ppb (mean value±SD 2-3.2 ppb), which different from the mask (p<0.0001), and from ETT values (p<0.0001). Most eNO is produced by the upper airway in healthy pre-school children. The lower airway constitutive eNO production is very low. The LMA does not completely isolate the upper airway and current mask collection techniques allow significant contamination of samples by sino-nasal eNO production in young children.

Biography

Tareq M Al-Ayed obtained his MBBS at King Saud University, Riyadh, in 1992. He did his Pediatric Residency training at King Faisal Specialist Hospital & Research Centre from 1993 to 1997. He then received the Diploma in Child Health from the Royal College of Physicians and Surgeons, Ireland in September 1996. He is certified in both Saudi Board of Pediatrics (February 1998) and American Board of Pediatrics (October 1998). He did his Pediatric Critical Care Medicine Fellowship training at McGill University, Canada from 1998 to 2001 and then he became a Consultant Pediatric Intensivist at King Faisal Specialist Hospital & Research Centre – Riyadh. He is also the Head of Saudi Pediatric Intensive Care Society.

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