

NOKIAS 2016 Congress abstract

Turku Finland 17<sup>th</sup> Sept. 2016

Olli Vänttinen

## EMERGENCY SITUATIONS WITH CHILDREN UNDERGOING ANESTHESIA

Critical incidents have been reported to occur in 0,5-3 % of pediatric anesthetic procedures while cardiac arrest seems to occur in 0,05-0,09 % of anesthetics. Critical incidents are almost four times more common in infants less than one year of age compared with older children. An essential feature of these incidents is that majority of them are related to airway and respiratory problems. Cardiovascular complications are far less common in children than in adult population.

An understanding of the anatomical and physiological features of the respiratory system of children is crucial when taking care of these patients. The airway is narrower in children than in adults and its tendency to obstruct and collapse is greater. The treatment algorithm for laryngeal spasm must always be clearly in mind and an airway management plan should be made for each patient individually. The respiratory reserves of a small infant are poor and their tendency to develop lung atelectasis is significant. For these reasons the importance of sufficient ventilation and oxygen content at all times is emphasized.

Progressive hypoxemia leads to hemodynamic collapse through bradycardia very rapidly and the only effective treatment is the restoration of oxygenation. Small children are also susceptible to hypovolemia and hemodynamics can easily be compromised for example by hemorrhage. For these reasons continuous respiratory and hemodynamic monitoring is vital. Even cardiac arrest situations in hospital setting have a remarkably good prognosis in children when the resuscitative measures have been started early and aggressively.

It has been reported in several studies (both adult and pediatric) that human factors are associated in even more than 50 % anesthesia complications and a significant proportion of complications are potentially preventable. Thus proper planning and preparedness together with sufficient skill and experience in pediatric anesthesia are considered the cornerstones of safe practice.

The lecturer will present a patient case which hopefully highlights some of the topics mentioned above.