

## **Correlation of Carboxyhemoglobin Levels and Secondhand Smoking Related Complications in Pediatric Tonsillectomy Patients**

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### **Background and Goal of Study**

Surveys estimate that 39-71% of children are exposed to secondhand smoking (SHS) all over the world. SHS has negative effects on airway inflammatory responses, structural and also lung functional development. Furthermore there is a relationship between the level of CO exposure and the risk of secondhand smoking related complications during postoperative period. We thus hypothesized that perioperative carboxyhemoglobin levels are correlated with postoperative complications.

### **Materials and Methods**

100 ASA I-II pediatric patients were enrolled for tonsillectomy under general anesthesia. The intraoperative COHb levels of the children were assessed noninvasively using a CO-Oximeter (Radical-7 Rainbow SET Pulse CO-Oximeter; Masimo, Irvine, CA, Patients were divided into two groups according to COHb levels: 1) COHb  $\leq 3$  as low group; or, 2) COHb  $\geq 4$  as high group. The parents circled level of pain using Wong-Baker-Faces pain scale and we recorded Ramsey sedation scale, heart rate, non-invasive blood pressure, respiratory rate, and SpO<sub>2</sub>, complications (bronchospasm, laryngospasm, persistent coughing, desaturation, re-intubation, hypotension, postoperative bleeding, reoperation) in the postoperative period.

### **Results and Discussion**

Complications are occurred significantly lower in low CoHb group upon arrival in the post-anesthesia care unit vs 86.1%,  $p < 0.001$ ) and at the sum of postoperative 7 days (23.5% vs 54.5%,  $p < 0.001$ ). The most common complication was persistent coughing (during longer than 15 sec). VAS scores were significantly lower in low COHb group upon arrival in the post-anesthesia care unit (2(0-3)(0-5)  $p = 0.200$ ) and postoperative first hour (2(0-4), 2(0-5)  $p = 0.026$ ).

### **Conclusion**

Children exposed to environmental CO and who are scheduled to undergo general anesthesia have increased complications and pain in the postoperative period. A history of SHS in any child may have significant implications for the anesthesiologist. Careful evaluation of SHS in preoperative anesthesia assessment should be established.

**Reference(S):** Hampson NB, Scott KL. Use of a Noninvasive Pulse CO-Oximeter to Measure Blood Carboxyhemoglobin Levels in Bingo Players. *Respir Care*. 2006;51(7):758-60