

## **Continuous Noninvasive Hemoglobin Measurement is Useful in Patients Undergoing Double-Jaw Surgery**

Kim S.H., Choi J.M., Kim H.J., Choi S.S., Choi I.C. *J Oral Maxillofac Surg.* 2014 Mar 28. S0278-2391(14)00324-3.

### **Purpose**

Continuous measurement of hemoglobin by pulse CO-oximetry (SpHb; Masimo Radical 7 device, Masimo Corp, Irvine, CA) may be helpful during double-jaw surgery when massive hemorrhage is anticipated. Given the possible influence of low blood pressure on the detection of hemoglobin levels, the agreement of the SpHb was evaluated in patients undergoing orthognathic surgery when using hypotensive anesthesia.

### **Materials and Methods**

Patients who underwent elective Le Fort I osteotomy and bilateral sagittal split ramus osteotomy (BSSO) were enrolled in this observational prospective cohort study. SpHb was compared with time-matched arterial total hemoglobin (tHb) before incision, at Le Fort I osteotomy, at BSSO, and at skin closure. The correlation between simultaneous SpHb and tHb measurement pairs was evaluated. Agreement was assessed by a comparison of SpHb with tHb using the intraclass correlation coefficient (ICC) and the Bland-Altman plot.

### **Results**

The average age of 51 patients was  $23 \pm 5$  years and 32 patients were male. The correlations of SpHb and tHb measurements were 0.72, 0.85, 0.89, and 0.78 before incision, at Le Fort I osteotomy, at BSSO, and at closure, respectively. Bland-Altman analysis for SpHb and tHb showed respective bias values of 0.12, 0.07, -0.09, and -0.90 g/dL. ICC values between SpHb and tHb were 0.82, 0.90, 0.91, and 0.87, respectively.

### **Conclusions**

Continuous monitoring of hemoglobin may help to determine the appropriate time to perform an invasive measurement of hemoglobin in patients who undergo double-jaw surgery.