

## **Pulse Oximeter Methemoglobin Measurements in Patients with Tumescant Anaesthesia and Prilocaine.**

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### **Introduction**

Liposuction with local tumescant anesthesia (LTA) is broadly established as cosmetic procedure. Lidocaine and prilocaine are the common local anesthetics in LTA technique combined with epinephrine and triamcinolone. One risk is the toxicity of high local anesthetic levels in blood and - especially with prilocaine - the generation of methemoglobin (MetHb). Since pulse oximeter (PO) technology is available for noninvasive control of MetHb levels the following questions were focused: 1. How are the incidence and the quantity of MetHb levels higher than 8 % measured by PO? 2. How accurate are the SpMet data of the PO with respect to MetHb values of CO oximetry?

### **Methods**

With ethics committee approval and written informed consent we followed 133 patients with liposuction procedure in a private hospital. The mixture of prilocaine 2 % (10 ml) and lidocaine 2 % (10 ml) combined with epinephrine 1:1.000 (0.7 ml) in NaCl 0.9 % (1029 ml) was infused as LTA into the subcutaneous fat. Patients were monitored with a Masimo Radical-7 pulse oximeter using a reusable fingerclip (SpMet in %) and basic blood samples were drawn via venous access prior to the the procedure. When SpMet values higher than 8 % were displayed a second venous sample was drawn and the patients were further monitored. In these patients the blood MetHb levels were controlled intra- and postoperatively - when a maximum was displayed - and the next morning. Blood probes were analyzed with a GEM 4000 (Instrumentation Laboratory) blood gas analyzer.

### **Results**

In 34 patients (26 %) the PO displayed SpMet values higher than 8 %. The maximum value for MetHb was 18 % with the corresponding value for SpMet of 31 %. The PO overestimated the MetHb levels measured with a reference method (Figure 1) and (Figure 2). Highest levels of MetHb were recorded in 18 patients intraoperatively, in 12 patients postoperatively and in 4 patients at the next morning.

### **Conclusion**

Noninvasive monitoring of MetHb in patients with LTA including prilocaine is strongly recommended with respect to unexpected and undetected high levels of MetHb in the intraoperative, postoperative and late postoperative phase.

**Figure 1**

