

Clinical Usefulness of New-Generation Pulse Oximetry in the Paediatric Cardiac Surgery Setting
Cannesson M., Hénaine R., Di Filippo S., Neidecker J., Bompard D., Védrette C., Lehot J.J. *Ann Fr Anesth Reanim.* 2008 Oct;27(10):808-12. [Article in French]

Objectives

Arterial oxygen saturation (SaO₂) monitoring using pulse oximeter (SpO₂) is mandatory in the intensive care unit. The aim was to assess bias and precision of new (SpO₂ng) and old (SpO₂og) pulse oximeter technologies in the postoperative period following pediatric cardiac surgery in cyanotic children.

Study Design

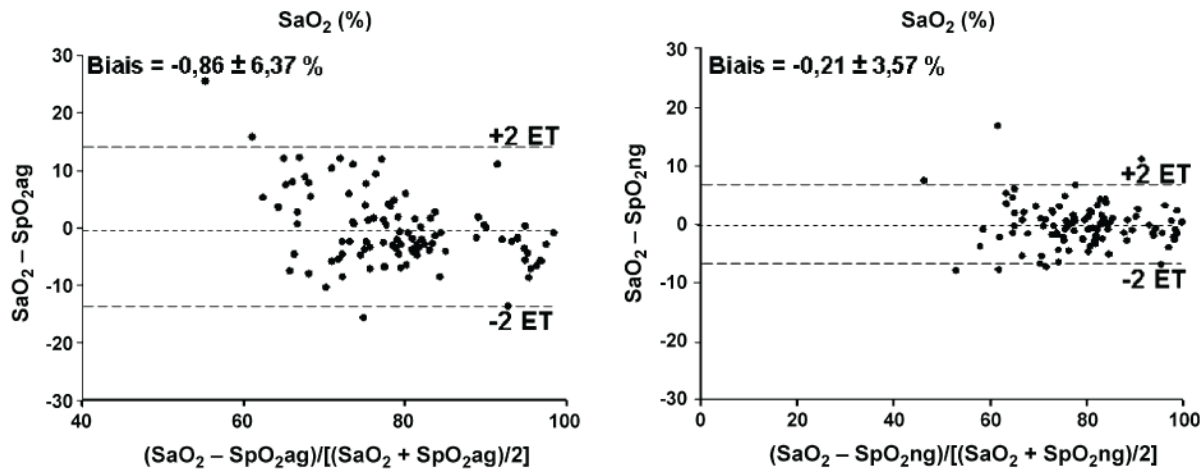
Prospective, monocentric.

Patients and Methods

Ten patients (7 days to 53 months old) were studied in the postoperative period following palliative cardiac surgery. SaO₂, SpO₂og, and SpO₂ng were obtained every 4 hours. SaO₂ of arterial blood sample was obtained from an intra-arterial catheter located in the radial artery, on the same side as the oximeters. Bias and precision were assessed using Bland-Altman analysis.

Results

We obtained 136 SaO₂ determinations. Mean SaO₂ was 76±15%. SpO₂og was significantly different from SaO₂, while SpO₂ng was not different from SaO₂. In 21 (15%) cases, SpO₂og was not available whereas SpO₂ng was available in 136 (100%) cases. In the remaining 115 cases, SpO₂ng's precision was significantly better than SpO₂og's precision.



Discussion

SpO₂ng is more accurate and more reliable than SpO₂og for SaO₂ monitoring in the postoperative period following pediatric cardiac surgery in cyanotic children.