Correspondence

Photometric haemoglobin assessment

To the Editor:
I would like to respond to the study of Jaeger *et al.*[1] concerning peri-operative on-site haemoglobin determination. The authors claim that there are no clinical studies performed with haemoglobinophotometers in clinical situations. In 1991 we published our data from a clinical study on patients in open heart surgery[2] and found a good correlation between the "gold standard" laboratory measurement and the haemoglobinometer ($r = 0.965$). We also found that the limits of agreement[3] for haemoglobin concentrations <7 mmol·l^{-1} were 0.0358 ± 0.576 mmol·l^{-1}, which is clinically acceptable.

Since 1990 we have used the haemoglobinometer in our department for all patients to determine the haemoglobin concentration to decide whether or not transfusion with erythrocytes is necessary. Besides this regular use, the haemoglobinometer helps us in cases of intentional hyper- and normovolaemic haemodilution.

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To the Editor:
We would like to respond to the well designed study by Jaeger *et al.*[1] We performed a similar study several years ago in 62 trauma patients: 40.3% were severely polytraumatized patients with an average injury severity score of 22.6 ± 7.8.[2] Other studies in cardiac surgery[3] and in transurethral resection of the prostate[4] followed. Comparison of our haemoglobin measurements for the azide methaemoglobin reaction (HiN3 method; HemoCue) and the haemoglobin cyanide method (HiCN method) showed strong correlations for arterial ($r^2 = 0.93$), capillary ($r^2 = 0.92$) and venous ($r^2 = 0.87$) blood samples. The difference between our study and that of Jaeger *et al.* was that, especially between capillary and arterial blood samples, we observed comparable correlations of serum haemoglobin concentration measured by HemoCue. This discrepancy may be due to differences in study design, statistical analysis or in the method used to draw capillary blood (from the tip of the finger; the first drop was omitted and after dry cleaning only the next drops were used).

We found the average Hb values of the inter-user variability obtained by Jaeger *et al.*, where different anaesthetists collected the samples and performed the measurements with the HemoCue, very interesting. This agrees with our observation that three samples drawn concomitantly by one anaesthetist usually provided the same results. However, one pair of samples in our study showed a different initial value (8.5 g·dL^{-1} in sample 1, *vs* 10.4 g·dL^{-1} in samples 2 and 3), indicating the need for at least two specimens per measurement.

Overall, we agree with Jaeger *et al.* that this easy-to-handle device has sufficient accuracy and can be used for in-hospital, on-site haemoglobin testing.

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