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Usefulness of Non-invasive Serum Hemoglobin Measurement in a Perioperative Setting: Prospective Observational Study

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Patient Blood Management (PBM) programmes seek to reduce the number of missed anaemic patients in the run-up to surgery. The aim of this study was to evaluate the usefulness of haemoglobin (Hb) measured non-invasively (SpHb) in preoperative screening for anaemia. We conducted a prospective observational study in a preoperative clinic. Adult patients undergoing examination for surgery who had their Hb measured by laboratory means also had their Hb measured non-invasively by a trained health care provider. 1216 patients were recruited. A total of 109 (9.3%) patients (53 men and 56 women) was found to be anaemic by standard laboratory Hb measurement. Sensitivity for SpHb to detect anaemic patients was 0.50 (95% CI 0.37 0.63) in women and 0.30 (95% CI 0.18 0.43) in men. Specificity was 0.97 (95% CI 0.95 0.98) in men and 0.93 (95% CI 0.84 1.0) in women. The rate of correctly classified patients was 84.7% for men and 89.4% for women. Positive predictive value for SpHb was 0.50 (95% CI 0.35 0.65) in men and 0.40 (95% CI 0.31 0.50) in women; negative predictive value was 0.93 (95% CI 0.92 0.94) in men and 0.95 (95% CI 0.94 0.96) in women. We conclude that due to low sensitivity, SpHb is poorly suitable for detecting preoperative anaemia in both sexes under standard of care conditions.