

Need of packed red blood transfusion before and after the inclusion of intraoperative continuous noninvasive hemoglobin monitoring technology in a real-life setting in a developing country

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Introduction: The use of intraoperative continuous non-invasive hemoglobin monitoring (ICNHM) has demonstrated its effectiveness in reducing the need of packed red blood transfusion in developed countries. The objective of this study is to compare the need for transfusion of packed red blood and other blood products before and after the inclusion of ICNHM technology in a real-life setting in a developing country.

Methods: This is a retrospective cohort of pregnant women presenting with obstetric hemorrhage between 2013 and 2020. Groups were divided by the use of ICNHM (Radical-7 pulse CO-oximeter [Masimo Corp, USA]) which started in 2015, meaning that all women before 2015 did not have ICNHM available. Descriptive and inferential statistics were used. The number of obstetric hemorrhages packed red blood cells, platelet concentrates, cryoprecipitates, and fresh frozen plasma were analyzed by year using a quadratic fit analysis.

Results: A total of 1,479 pregnant women presented with obstetric hemorrhage during the study period, 399 (27%) before 2015 and 1,080 (73%) after 2015 and therefore after the use of ICNHM. There was no significant difference on the median number of cases before and after the use of ICNHM (Figure 1). However, there was a significant difference on the median number of packed red blood cells used (317 vs 95; $p=0.004$), fresh frozen plasma (136 vs. 23; $p=0.002$), platelet concentrates (62 vs. 13; $p=0.026$), and cryoprecipitates (47 vs. 9; $p=0.001$) used after initialization of ICNHM technology. Table 1 shows the calculations for each blood product.

Conclusions: In a real-life setting in a developing country, the introduction of ICNHM does not reduce the number of obstetric hemorrhages but significantly decreases the requirement of packed red blood, fresh frozen plasma, platelet concentrates, and cryoprecipitates transfusion.