We aimed to determine whether low volume blood sampling using SVTs for routine diagnostic purposes translates to decreased fall in haemoglobin concentration, and examine downstream effects on anaemia and need for transfusion during ICU admission” Briggs et al (2019).

Abstract:

BACKGROUND: Patients admitted to intensive care units (ICUs) undergo multiple blood tests. Small volume vacuum phlebotomy tubes (SVTs) provide an important blood conservation measure. SVTs reduce summative blood loss and may reduce odds of transfusion. We aimed to determine whether low volume blood sampling using SVTs for routine diagnostic purposes translates to decreased fall in haemoglobin concentration, and examine downstream effects on anaemia and need for transfusion during ICU admission.

STUDY DESIGN AND METHODS: A single-centre, controlled before-and-after study, evaluating a unit-wide changeover from conventional volume vacuum phlebotomy tubes (CVTs) to SVTs on April 2015. All ICU patients admitted for > 48 hours during the 12 months before and after the intervention were included in multivariate and univariate analysis. Groups were stratified into short admissions (2-7 days) and long admissions (> 7 days).

RESULTS: A total of 318 patients were analysed. For short admissions, SVTs decreased fall in haemoglobin concentration (unstandardized coefficient, -6.7; P = 0.001) and episodes of severe anaemia (odds ratio, 0.37, P = 0.02). There were no changes to haemoglobin concentration in long admissions. No effects on need for transfusion were observed (short admissions, P = 0.05; long admissions, P = 0.11). SVTs reduced daily sampling volumes by 50% with no increase in laboratory error (short admissions, P = 0.61; long admissions, P = 0.98). A moderate correlation existed between blood draws and fall in haemoglobin concentration (short admissions, r = 0.5; long admissions, r = 0.32).

CONCLUSION: SVTs reduce sampling volume without increasing laboratory error. Follow-on effects include reduced fall in haemoglobin concentration and severe anaemia. These correlations are absent in long admissions.
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