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Vasovagal reaction among young first-time blood donors: prediction by body dimension and reduction by less collection

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Introduction

In addition to providing an adequate blood supply, blood collection institutions have the obligation to make the donation process as safe as possible for the donors. Vasovagal reactions (VVR) are of particular concern because of their relatively common occurrence and the associated injuries. It is, therefore, of utmost interest to identify donors at high risk of VVR, so that intervention can be targeted accordingly. On the other hand, although it has been proposed that lower collection volume is associated with lower VVR rate, no difference could be detected among the general donor population in one large study.

Objectives

Given that young first-time donors are at particular risk, this retrospective study was conducted to compare the positive predictive values of six variables related to body dimension, and to find out the difference in VVR rate between two collection volumes.

Methodology

This was a retrospective study of the whole blood donations collected from 1 July 2010 to 31 December 2011. All 38,436 young (aged 16 to 18) first-time donors were included. Donors weighted 41 to 49 kg donated 350 ml and those weighted 50 kg or above gave 450 ml, although many donors of the latter group were fearful about the new experience and still opted for 350 ml. Chi-square test was applied for statistical analysis.

Result

Body weight (BW) was worse than estimated blood volume (EBV) and percentage of EBV removed (BVR) in predicting VVR. While body mass index (BMI) should not be used for refinement due to its lowest positive predictive value, BW alone did not appear to be good enough either. BVR or EBV, therefore, should be applied so that the high risk group can be identified better. With our BVR cutoff, 15.0% of all VVR could be identified out of 2.8% of all donations. With 100 ml less collection, this study detected large and significant reduction in VVR rate, up to 58%. Interestingly, a higher

weight was associated with a higher reduction among the females. The actual effect is possibly even more pronounced, as fear about donation is known to associate with a higher VVR rate. Although selective deferral has been successful, the donors may never come back to attempt again. A multi-tiered collection system, therefore, should be considered to protect the most vulnerable donors.