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Double Red Blood Cell Donation Eligibility and Interest

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INTRODUCTION

The process of double RBC donation by apheresis (DRBC), which facilitates the donation of two units of red blood cells (RBC) in a single donation session, was estimated to account for approximately 4% of blood donations in 2005, and is believed to be growing at a rate of 40% per year. Blood shortages in this country could be corrected by converting as few as 10% of current single unit whole blood donors to DRBC donors [1]. Advantages of DRBC donation may include reduction in donor-related exposures in recipients, improved cost-effectiveness of the donation process, and improved convenience for donors [1-4]. The safety profile of DRBC has been found to be equal to, and in some cases better than that of single unit whole blood donation, especially in young donors (<20 y/o) [5, 6]. DRBC donors have been shown to restore 92% of RBC volume in 4 weeks without iron supplementation [7], and to have no significant differences in hemoglobin, serum iron, or ferritin when compared with single unit whole blood donors six months after donation [8]. Our study seeks to quantify the number of current single unit whole blood donors who are both eligible for and interested in DRBC donation.

METHODS

An anonymous questionnaire consisting of 13 multiple choice questions was mailed to 500 current whole blood donors (donors of whole blood of type O+, O-, A-, B- from 2007 to present) as well as to 1500 lapsed whole blood donors (donors of blood type O+, O-, A-, B- from 2000 to 2007 who are no longer donating). Participants were randomly selected from a list of previous whole blood donors in Vermont. The study was approved by the institutional review boards (IRB) of the University of Vermont and the American Red Cross (ARC). The surveys were sent by mail on ARC letterhead with enclosed self-addressed stamped envelopes. Surveys included an introduction that explained basic principles of DRBC collection as well as the purpose of the study. The responses of these surveys were entered into a spreadsheet and analyzed.

RESULTS

Table 1. Respondent demographics and % eligible for DRBC.

| Demographics | No. of respondents | % eligible for DRBC |
|---------------------------------|--------------------|---------------------|
| Gender | | |
| Male | 66 | 100%* |
| Female | 141 | 36.9% |
| Donor Status | | |
| Repeat donor | 77 | 54.5% |
| Lapsed donor | 136 | 55.9% |
| Age | | |
| 18-25 yr | 21 | 42.9% |
| 26-36 yr | 28 | 42.9% |
| 36-45 yr | 43 | 58.1% |
| 46-55 yr | 53 | 66.0% |
| 56-65 yr | 52 | 59.6% |
| 66+ yr | 11 | 54.5% |
| Blood Type (self-report) | | |
| A+ | 7 | 57.1% |
| A- | 21 | 71.4% |
| B+ | 2 | 50.0% |
| B- | 6 | 50.0% |
| AB+ | 1 | 100% |
| O+ | 114 | 55.3% |
| O- | 37 | 48.6% |
| Do not know | 16 | 68.8% |
| Prior donation reaction | | |
| No | 160 | 63.8%* |
| Yes | 45 | 33.3% |
| Total No. of Respondents | 213 | 55.4% |

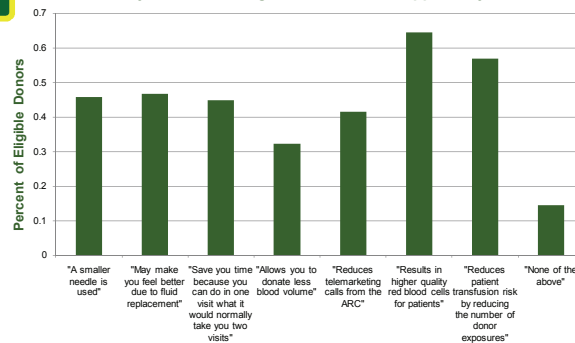
*P < 0.05, Fisher's exact test.

Table 2. Responses of donors eligible for DRBC donation and interested in donating ("very interested" or "somewhat interested").

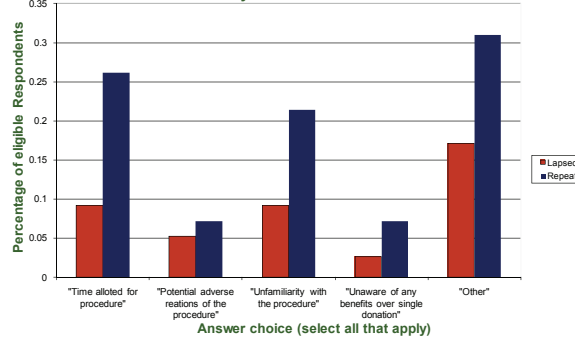
| Survey Question | Eligible and interested in donating DRBC (%) |
|--|--|
| Donor Type | |
| Repeat Donor | 51.2% |
| Lapsed Donor | 52.0% |
| Prior knowledge of double RBC donation | |
| No | 52.1% |
| Yes | 51.2% |
| Deferral for iron deficiency in past year | |
| No | 54.2%* |
| Yes | 12.5% |
| Prior donation reaction | |
| No | 52.0% |
| Yes | 53.3% |
| Donation frequency in past year | |
| Less than once per year | 44.7% |
| Once a year | 58.8% |
| 2-3 times a year | 58.3% |
| 4-5 times a year | 63.6% |
| 6 or more times a year | 50.0% |
| Total eligible donors, n=116 | 51.7% |

*P < 0.05, Fisher's exact test.

"Do any of the following features of DRBC appeal to you?"



"What are the reasons you have not become a DRBC Donor?"



ADDITIONAL RESULTS

Of the respondents who were eligible for double RBC donation:

- 37% (44/118) were aware of the DRBC donation process.
- 5% (6/118) are students, 6% (7/118) are part-time employees, 75% (88/118) are full time employees, 10% (12/118) are retired, and 9% (11/118) are not employed. (Donors had the option of choosing more than one identifier.)
- 81% (95/118) reported donating at the donation center.
- 16% (12/75) of lapsed donors and 7% (3/42) of repeat donors experienced an adverse reaction after a whole blood donation.

DISCUSSION

- Despite the overwhelming interest in DRBC donation, the majority of survey respondents who are eligible DRBC donors (L/R) had never heard of DRBC donation before completing this survey.
- Patient safety, including higher quality RBCs and lower transfusion risks for patients were among the most appealing features of DRBC donation, which suggests that altruism may motivate interest.
- Donor education should be directed at alleviating misconceptions and increasing awareness in regards to the details of the DRBC procedure.
- When educating eligible donors it is important to emphasize that DRBC has the potential to reduce the total amount of time required to donate the same amount of blood annually relative to multiple single unit donations. Furthermore, it will also be important to emphasize that it may result in a higher quality product and a lower risk profile for recipients.
- Based on our results it may be important to target males and non-iron deficient individuals regardless of age when advertising for DRBC donation.
- A future study could focus on recruiting donors from this study to participate in DRBC donation so as to compare participation to stated interest.

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