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Implementation of measures to reduce vasovagal reactions - Donor participation and results.

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Abstract

Background: Blood donation is a pleasurable experience for the donors and influence there decision to return for future. There are several strategies to reduce donor reactions. We report donor participation and reaction rates before and after implementing multiple measures.

Methods: We introduced a structured program of giving 500 mL of water and a salty snack pre-donation and applied muscle tension (AMT) during donation. Time on the donation chair post-donation was decreased from 5 to 2 min for repeat donors. We assessed participation rates using our quarterly survey of 10,000 recent donors. We extracted vasovagal reactions with loss of consciousness (LOC) from our operational database and compared pre-implementation and post-implementation periods.

Results: We analyzed 2000 whole blood donors over a period of 5 months at indoor and outdoor blood donation camps under department of I.H.T.M, S.M.S. Medical college, Jaipur. In the current study the incidence of Vaso-vagal reaction was 0.9% (18 donors)

Conclusion: In conclusion, current evidence on interventions designed to prevent or reduce VVRs in blood donors is limited and does not provide strong support for administration of oral water prior to, or AMT during blood donation. Further large trials are required to reliably evaluate the effect of these and other interventions in the prevention of VVRs.

Keywords: VVRs, blood, AMT

Introduction

Syncope, or transient loss of consciousness, is the major cause of immediate morbidity of medical significance during blood donation and is the most severe of a spectrum of vasovagal reactions (VVRs) which range from mild pre-syncopal symptoms (e.g., nausea, light-headedness) to severe reactions involving syncope. The overall prevalence of VVRs in whole blood donors is estimated to be between 1.4% and 7% (moderate reactions) and between 0.1% and 0.5%.[1]

VVRs have significant implications not only for the welfare of donors but also staff time and training, the management of donor sessions and perhaps most crucially on the retention of donors and security of the blood supply.[2] A recent large cohort study from The Netherlands reported a non-return rate for subsequent

donation of 45% in first-time donors who experienced VVRs compared with 18% in donors who did not experience such reactions, with similar differences in repeat donors.[3]

An increased risk of VVRs has been associated with a number of factors including pre-donation anxiety, first-time donor status, young age, weight, low estimated blood volume (EBV), and female sex.[4]

New donor selection criteria that specify acceptance of only those donors with an estimated blood volume of >3.5L in young blood donors have recently been introduced in the USA by the American Red Cross and Blood Systems Inc. which has resulted in an overall 24% reduction in VVRs and there there is evidence that the rate of decrease in pre - syncopal reactions was inversely correlated with donor age.[5]

Methods

Type of study: Cross-sectional study

Inclusion criteria: All apparently fit blood donors (as per DGHS guidelines)

Exclusion criteria: Hypotension patients, any Systemic disease.

We introduced a structured program of 500 mL of water and a salty snack pre-donation and applied muscle tension (AMT) during donation. BP was measured for all donors. Time on the donation chair post-donation was decreased from 5 to 2 min for repeat donors. We assessed participation rates using our quarterly survey of 10,000 recent donors. We extracted vasovagal reactions with loss of consciousness (LOC) from our operational database and compared pre-implementation and post-implementation periods.

Data analysis

Data was summarized and classified in the form of master chart. Qualitative data was expressed in proportion (%). Quantitative data was expressed in mean±SD. ignificance of difference in proportion was calculated by 'chi-square test'/Fisher Exact test. Significance of difference in mean ± SD was calculated by 'student T test'. P-value < 0.05 was considered as statistically significant. All these statistical tests was applied using software Medcalc 16.4

Result

Table 1: Socio-demographic profile

Total donor	2000
Male: Female	1300:700
Frequency of vasovagal reaction (M: F)	7:11

Table 2: Vasovagal reaction

Frequency of vasovagal reaction	18(0.9%)
Frequency of vasovagal reaction (M: F)	7:11

Table 3: Association between vasovagal reaction and intervention

Vasovagal reaction	Interventions present	Interventions absent	p-value
Present	10	8	0.312
Absent	890	1092	
Total	900	1100	

Discussion

In India the annual demand for blood transfusion is estimated to be 2,50,000 to 3,50,000 unit per year. But due to lack of voluntary donor and consciousness among people this demand is hardly met.[4] As donor safety is an essential prerequisite for an adequate and safe voluntary blood supply current study was carried out to evaluate the incidence of Vaso-vagal reaction following whole blood transfusion.

We analyzed 2000 whole blood donors over a period of 5 m5 months at indoor and outdoor blood donation camps under department of I.H.T.M, SMS, Jaipur. In the current study the incidence of Vaso-vagal reaction was 0.9% which is much smaller than the previous reports (2-3%), 5.3%[5], 0.89%[6].

Our result is closer to Zervou et al 10 (0.53%). We believe that the most possible explanation for this difference is the fact that the physical examination and selection of blood donors is performed by experienced physicians and therefore we take a better evaluation of blood donors who have predisposition to complication. An additional reason for this difference is possibly the small number of donors in study. Although Crocco and D'Elia reported a much smaller incidence of VVR (0.2%) [7]

Too few studies investigated interventions such as audio-visual distraction, social support, caffeine and water combined with AMT to allow meta-analysis to be performed and these interventions may be fruitful areas for further work.

Furthermore, there are important outcomes which are very difficult to study. In particular, late syncope occurring sometime after the donor has left the clinic are associated with the worst outcomes. However, their rarity makes study difficult and it may be that a reduction in late events is only seen in data collected across blood services as interventions are implemented on a large scale.

As interventions are implemented, it would be very helpful to have formal cost-benefit economic analyses. Furthermore, the compliance of relatively complex procedures outside a strict trial setting has to be evaluated.

Conclusion

In conclusion, current evidence on interventions designed to prevent or reduce VVRs in blood donors is limited and does not provide strong support for administration of oral water prior to, or AMT during blood donation.

Further large trials are required to reliably evaluate the effect of these and other interventions in the prevention of VVRs.

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