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Study Of Adverse Reactions In Whole Blood And Apheresis Donors At Tertiary Care Hospital.

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ABSTRACT

Blood and apheresis donations are widely considered to be safe with a low incidence of adverse reactions and injuries but sometimes adverse reactions of varying severity may occur during or after the completion of blood donation process. This was a prospective study conducted on all allogenic whole blood and apheresis donors over a period of one year at GGS Medical College & Hospital, Faridkot . Donor selection criteria were in accordance with Drug and cosmetic Act of India. Overall adverse reaction rate was 0.3% i.e. 34 adverse reactions were reported in 13299 allogenic whole blood donors and 3.8% i.e. 5 in 133 apheresis donors. Vasovagal reactions were found to be the most common of all the donor reactions i.e.69.2%. Whereas citrate toxicity of mild type was among the most common adverse event noticed in cases of apheresis donors ie. 3.8%. Majority (56.4%) of adverse reaction were seen in younger age group i.e. 18-30years. Citrate toxicity is the main cause for adverse reactions in apheresis. This can be corrected by continuous observation at the time of apheresis. If donor develop any of symptom of citrate toxicity i.e. numbness, tingling sensation, cardiac arrhythmia etc , calcium tablets or infusion should be given during the procedure.

Keywords: Citrate toxicity, adverse reactions, whole blood

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INTRODUCTION

Blood and apheresis donations are widely considered to be safe with a low incidence of adverse reactions and injuries but sometimes adverse reactions of varying severity may occur during or after the completion of blood donation process [1]. Adverse events in blood donors can adversely affect donor recruitment and retention and have a negative impact on donor return. Adverse events cause discomfort, anxiety and embarrassment to the donors [2]. The adverse reactions that occur in donors can be divided into local reactions and systemic reactions: Local reactions occur predominantly because of problems related to venous access and are usually hematomas due to extravasation from veins caused by incorrect placement of the needle during venepuncture [3, 4]. The aim of this study was to estimate the frequency of donor reactions and to avoid the cause of adverse reactions.

MATERIALS AND METHODS

This was a prospective study conducted on all allogenic whole blood and apheresis donors over a period of one year at GGS Medical College & Hospital, Faridkot . Donor selection criteria were in accordance with Drug and cosmetic Act of India.

All donations were performed in donor area of department and in the blood donation camps at various locations. All donations were performed under strict asepsis using 16 gauge needle inserted into a vein in anticubital fossa. Strict asepsis was maintained by cleaning the site of venipuncture sequentially using methylated spirit and betadine. The minimum weight required for donation is 45kg and minimum hemoglobin criteria was set at 12.5g/dl. A well ventilated, friendly and comfortable atmosphere for donors is provided at our department. Donors were observed before, during and after blood donations. Donors are given refreshment and retained in donor rest room for at least 30 min for post donation care.

A total of 133 apheresis (plateletpheresis) procedures were performed during the study period using Haemonetics MCS + machine with a single needle procedure under strict asepsis.

Adverse events was defined as symptoms or signs of donor discomfort or sufficient severity such that either the donor called for attention of staff or were noticed by staff. Pain at time of venepuncture was excluded.

RESULTS

A total of 13432 donors were observed for adverse reactions during the study period.

Overall adverse reaction rate was 0.3% i.e. 34 adverse reactions were reported in 13299 allogenic whole blood donors and 3.8% i.e. 5 in 133 apheresis donors.

Vasovagal reactions were found to be the most common of all the donor reactions i.e.69.2%. Whereas citrate toxicity of mild type was among the most common adverse event noticed in cases of apheresis donors ie. 3.8%.

Majority (56.4%) of adverse reaction were seen in younger age group i.e. 18-30years.

35.9% of the reactions were in the donors who had weight between the range 45-60kg. 87.2% of the adverse events were observed on site donations i.e in department/ and lesser number of donor reactions were seen in voluntary blood donation camps.

This is in contrary to the results observed in other study. It may be due to the reason that donors in camp are motivated by religious and educational institutes; as a result which anxiety or apprehension is less.

Citrate toxicity: Out of 5 adverse reactions observed during apheresis procedures, 4 were of mild type and only one case was of severe type.

DISCUSSION

The systemic reactions in contrast to the local reactions can be divided into mild or severe. The most frequent adverse reactions is mostly mild vasovagal reactions, as it is an unpleasant experience for the donors. The systemic reactions are characterized by the appearance of pallor, sweating, dizziness, Abdominal cramps (due to increased gastrointestinal motility due to increased vasovagal effect), nausea, hypotension and bradycardia [5]. Therapeutic intervention must be swift, otherwise this clinical picture typical of vasovagal reaction will progress to an episode of syncope of variable severity. Donor characteristics that have been observed to predispose to adverse events include young age, low weight, first-time donation status, female gender, and Caucasian race [6, 7]. These studies are primarily on voluntary donors from developed countries and may be applied to predict the reaction pattern in voluntary donors in India, but may not be applicable to replacement donors who donate blood for a variety of reasons [8]. The present study is prospective and analyzes the entire spectrum of adverse events in both whole blood and apheresis donors. The aim of this study was to estimate the frequency of donor reactions and to avoid the cause of adverse reactions [9].

In our study adverse reactions in whole blood donors were only 0.3% which is accordance with results of study conducted all over the world in which adverse reaction from 0.3-3.8%, most of them were of vasovagal (69.2%).Vasovagal reactions mostly were of mild type including dizziness, sweating, abdominal cramps. only 3.7% of cases were of severe type ie. Loss of consciousness lasting for more than one minute. However Citrate toxicity was the main cause for adverse reactions in apheresis. This can be corrected by continuous observation at the time of apheresis. If donor develop any of symptom of citrate toxicity i.e. numbness, tingling sensation, cardiac arrhythmia etc , calcium tablets or infusion should be given during the procedure. The treatment includes slowing the reinfusion rate to allow for dilution and metabolism of the citrate, increasing donor blood to citrate ratio to decrease amount of citrate infused, giving oral calcium supplements and if required giving I/V calcium [2, 10].

CONCLUSION

Citrate toxicity is the main cause for adverse reactions in apheresis. This can be corrected by continuous observation at the time of apheresis. If donor develop any of symptom of citrate toxicity i.e. numbness, tingling sensation, cardiac arrhythmia etc , calcium tablets or infusion should be given during the procedure.

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