ABSTRACT

BACKGROUND & AIM

Plateletpheresis helps in collection of platelets from a single donor, thus reducing the donor frequency exposure and the risk of TTIs to the patient in need of platelet transfusions. There is a slow transition from voluntary whole blood collection to apheresis collections with more focus towards quality of platelet concentrate. In a developing country like India, since there is a constant demand for blood and its components, it is important to maintain a good donor safety profile and encourage an increase in repeat voluntary plateletpheresis donations. The aim of the study was to correlate the adverse reactions with changes in biochemical, haematological and procedural parameters in Plateletpheresis donors.

MATERIALS & METHODS

The study was conducted on 63 plateletpheresis donors over a period of one year (July 2016 – August 2017) using Haemonetics MCS+ cell separator. Prophylactic calcium supplementation was given to all the donors and were divided into two groups -Oral Ca^{2+} group (n=32) & IV Ca^{2+} group (n=31). The adverse events during the procedure were recorded and classified according to their nature. The pre and post procedure haematological and biochemical parameters along with procedural parameters from the donors were assessed with the aid of automated cell counter and biochemical analyser.

RESULTS

A total of 47.6% (n=30) adverse events were recorded in 63 plateletpheresis donors, of which 41.3% (n=26) were due to mild citrate toxicity followed by vasovagal reaction (4.8%; n=3) and haematoma formation (1.6%; n=1). All adverse

events were observed in the oral Ca^{2+} group and were mild in nature. There was a statistically significant post procedure drop in haemoglobin and platelet count ($p < 0.05$). Also, similar post procedure drop of S.Ionised Ca^{2+} levels in the Oral Ca^{2+} group was observed while there was a significant increase in post procedure S.Ionised Ca^{2+} in the IV Ca^{2+} group ($p<0.05$). The pre-procedure platelet count correlated positively with platelet yield ($r=0.288$; $p<0.05$) and negatively with duration ($r = -0.396$; $p <0.05$) and number of cycles ($r = - 0.399$; $p <0.05$).

CONCLUSION

Donor adverse reactions affect voluntary blood donor recruitment strategies. Prophylactic administration of intravenous calcium resulted in better bioavailability of serum ionised calcium with absence of adverse reactions, maintenance of lab parameters within normal range and better donor comfort. Further, if oral prophylactic calcium supplementation is preferred, administration of 2-3 tablets of calcium (0.969 g of total Ca^{2+}) most often prevents manifestations of mild citrate toxicity. However, it is imperative to conduct more studies with larger number of donors to observe donor adverse reactions specific to our population.

Keywords

Plateletpheresis, Haematological values, Biochemical values, Procedural values, Donor Adverse reactions, Prophylactic calcium supplementation.