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Fresh frozen plasma utilization pattern in tertiary care hospital of north western India

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Abstract

Background: Fresh Frozen Plasma (FFP) is mainly used in treatment of coagulation derangements; trauma emergencies. In this study, we analyzed appropriateness of transfusion requests in our tertiary care hospital.

Methods: Retrospective analysis of 10,000 FFP supplied in 3000 patients in SMS Hospital, Jaipur, Rajasthan, India was done in department of Immunohaematology and transfusion medicine, SMS Hospital, Jaipur, Rajasthan, India.

Results: 10,000 FFP was supplied. 7201 was supplied to male patients and 2799 was supplied to female patients. Maximum use of FFP was seen in blood cancer patients and in cardiothoracic surgeries.

Conclusion: FFP is most inappropriately used blood component and should be used judiciously. Regular audit of blood components serves as tool for accomplishment of quality tools and to understand clinical transfusion practices

Keywords: FFP, Audit, CTVS

Introduction

Fresh frozen plasma is indicated for the deficiency of coagulation factors with abnormal coagulation tests in the presence of active bleeding. Fresh frozen plasma is also indicated for a planned surgery or invasive procedure in the presence of abnormal coagulation tests, for the reversal of warfarin in the presence of active bleeding, or planned procedure when vitamin K is inadequate to reverse the warfarin effect, thrombotic thrombocytopenic purpura, and congenital or acquired factor deficiency with no alternative therapy. Based on a systematic review, other specific recommendations for fresh frozen plasma include trauma patients requiring massive transfusion and warfarin-related intracranial hemorrhage.[1]

Other situations where the administration of fresh frozen plasma cannot be recommended for or against based on systematic review include fresh frozen plasma transfusion at a plasma-to-RBC ratio of 1 to 3 or more

in trauma patients with massive transfusion. Conditions that cause the deficiency of multiple coagulation factors and may require the administration of fresh frozen plasma include liver disease and disseminated intravascular coagulation. Fresh frozen plasma transfusion may not be tolerated in patients with liver disease as patients may not tolerate the infusion volumes necessary to achieve adequate hemostatic levels of coagulation factors.[2,3]

The aim of this is study was to evaluate the usage of FFP according to indications and to reduce inappropriate usage.

Methods

Type of study: Hospital based record analysis.

Study population: Patients receiving FFP

Sampling methods: Convenience sampling

Method of data collection

Retrospective analysis of 10,000 FFP supplied in 3000 patients in SMS Hospital, Jaipur, Rajasthan, India was done in department of Immunohaematology and transfusion medicine, SMS Hospital, Jaipur, Rajasthan, India.

Detailed Analysis of requisition form which is sent to blood bank for issue of blood/blood components was done. It includes all parameters such as Clinical Indication, INR value, Specialty, Age, gender of the patient. It is written on requisition form by clinician and undersigned by him. INR values written on requisition form were crosschecked by the written report issued by hospital.

Data Analysis

Data was recorded as per Performa. The data analysis was computer based; SPSS-22 was used for analysis. For categoric variables chi-square test was used. For continuous variables independent samples'st-test was used. p-value<0.05 was considered as significant.

Results

Table 1: Demographic based analysis in terms of FFP supplied.

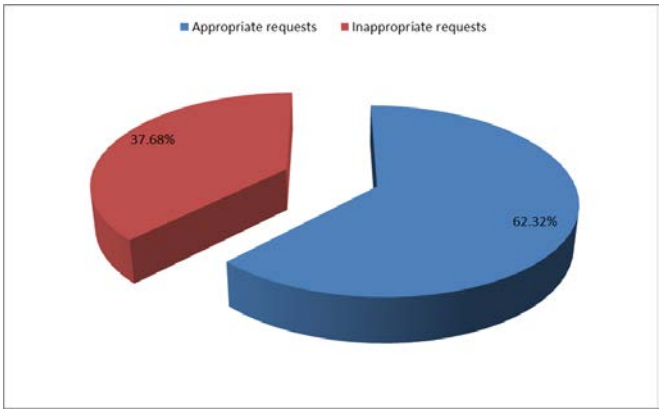
Mean age	42.36±14.36 Yrs
Male : Female	7201 : 2799
Rural : Urban	6405 : 3595
Hindu : Muslim	8786 : 1214

10,000 FFP was supplied. 7201 was supplied to male patients and 2799 was supplied to female patients.

Table 2: Departmental audit of FFP supply

Departments	No of subjects	Percentage
Blood cancer	1380	13.80
Cardiology	782	7.82
Nephrology	514	5.14
Medical oncology	580	5.80
Gastrology	524	5.24
CTVS	2218	22.18
Emergency trauma	1540	15.40
OBG	714	7.14
Neurosurgery	1120	11.20
Ortho	384	3.84
Urology	161	1.61
ENT	83	0.83

Maximum use of FFP was seen in blood cancer patients and in cardiothoracic surgeries.



Discussion

Clinical audit of the use of FFP is considered a valid method for improving the use of this blood component. Patients receiving FFP unnecessarily have the risk of allergic reactions, viral transmission, transfusion associated lung injury and volume overload without any clinical benefit.

The result of the retrospective audit of transfusion requests for the use of FFP showed 62.32% were appropriate and 37.68% were inappropriate requests.

A study done by Vishwanathan et al.[4] showed 30.39% of FFP requests received were with questionable indications. A prospective audit by Kakkar et al.[5] indicated 23.1% were inappropriate FFP requests. Chatterjee et al.[6] found 39% were inappropriate issues among surgical oncology patients

Clinical use of FFP was more seen in surgical conditions than medical conditions. FFP for medical conditions was highest seen in leukemic patients. FFP for surgical conditions was highest seen in cardiac surgeries mostly in CABG patients. Most appropriate use of FFP was also seen in CABG patients as seen in different studies.[7-9]

Maximum number of FFP used in surgical department is by CTVS. Maximum number of FFP used in medical department is by ONCOLOGY. Departmental study is being done to improve plasma usage so that critical areas/departments can be targeted and side effects of inappropriate use can be explained to medical personnel.

Critical areas that should be targeted by interventions to improve plasma usage are those related to the appropriateness of the indication, the completeness of the data entered in the request forms and the data recorded in the clinical charts.

FFP usage plays a significant role in DCP, DIC, CABG, Oncology patients, so if used appropriately serves as boon and can reach more patients in need.

Conclusion

FFP is most inappropriately used blood component and should be used judiciously. Regular audit of blood components serves as tool for accomplishment of quality tools and to understand clinical transfusion practices

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