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Research Paper

Blood and Blood Component Usage in Adults - An Audit

Medical Science

KEYWORDS : Blood and blood component, Packed red blood cells, Transfusion trends

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ABSTRACT

Blood transfusion is a life saving intervention that has eased modern medical therapy. Trends of using PRBC and components are increased in the recent past as most of the blood banks are equipped with component separation unit. The present audit is undertaken to know the trends of blood transfusion in a tertiary care hospital. A total of 392 units of blood and components were transfused to 191 adultsOf the 392 units transfused 148(38%) were Packed Red Blood Cells,137 (35%) were platelets, 95(24%) were platelets and 12 (3%)were whole blood . Anemia is the most common indication(43.6%) for transfusion followed by thrombocytopenia(39%). Periodic audit should be undertaken to know the trends of blood usage and ordering pattern in a hospital. It also helps to set policies to improve transfusion services and planning blood donation camps.

INTRODUCTION:

Blood transfusion is an integral and indispensible part of health care system. Transfusion is a life saving intervention and has become one of the sophisticated medical technical disciplines that eased modern medical therapy[1]. Introduction of blood component treatment had a major impact on the practice of transfusion which allows the treatment to be specific, reduces the risk of side effects and can efficiently use the specific component from a single unit of blood to treat several people[2]. Blood transfusion practices and requirement of type of blood and its components depends on geographical location as well as disease status of that area. It is essential for blood bank to be able to fulfill the demands of this life saving product and at the same time to evaluate and review existing trends of blood ordering. So that it prevents misuse, and scarcity, thus denial of blood supply to someone in life threatening circumstances. Keeping above points in mind an audit of usage of blood and its component among adults in a tertiary care hospital was done.

MAERIAL AND METHODS

Data for the present study was obtained from the records of SS blood bank which is attached to SS Institute of Medical Science and Research Centre in Davangere district, Karnataka. Demographic profile and data regarding details of blood and blood components transfused to adults aged 18 years and above over a period of 6 months from January to June 2012 was obtained. Blood transfused to adult females admitted to Obstetrics and Gynecology was excluded from the study. Data obtained was analyzed and correlated with the indications.

RESULTS

191 adults received blood transfusion during the study period. These patients were admitted to various departments which included medicine, surgery, oncosurgery, orthopedics etc. A total of 392 units of blood and components were transfused to these patients. Age group ranged from 19 to 95 years. Of these, 97 were males (50.7%) and 94(49.3%) were females.

Majority of the patients were Rh positive (n=177, 92.6%). The most common blood issued for transfusion was B (n=68, 35.6%) followed by O(n=60, 33%), A(n=39, 20%) and AB(n=24, 12.4%).

Table1: ABO and Rh blood group of patients who reccieved transfusion

Blood group	Rh Positive	RH Negative	No of patients	Total %
A	35	4	39	20%
B	63	5	68	35.6%
AB	22	2	24	12.4%
O	57	3	60	33%
Total	177	14	191	100

Of the 392 units transfused 148(38%) were Packed Red Blood Cells,137 (35%)were platelets, 95(24%) were platelets and 12 (3%)were whole blood . Anemia is the most common indication(43.6%) for transfusion.

TABLE 2: Distribution of blood and blood products according to indications

Indication	PRBC	Plt	FFP	WB	Total	%
Anemia	134	-	26	11	171	43.6%
Thrombo cytopenia	2	137	14	-	153	39%
Hypoprot einemia	2	-	55	1	58	17.4%
Total	148	137	95	12	392	100%
%	38%	35%	24%	3%	100	

DISCUSSION:

The aim of modern transfusion therapy is to provide suitable replacement therapy with blood components as opposed to whole blood for patients with specific hematologic deficit[3]. This is very well evident in the present audit where the whole blood utility is only 03%. Blood must be transfused keeping in mind certain precautions similar to drugs blood and its components have the potential to cause side effects. Due to easy availability of sophisticated blood banking services, we have to keep a check on blood and blood components usage

Most blood banks have been updated as component separating centers and thus the trend of using PRBCs and blood components has increased instead of Whole blood in the recent off late. The present audit on blood and blood component usage showed ratio of PRBC: Platelet : FFP : WB, 12.3:11.4:8:1 which is dissimilar to many studies where whole blood is still used widely inspite of component separation unit[2,4-7]. The transfusion pattern depends mainly on the geographic location and disease status of that area.

PRBC is the most issued blood component (n=148, 38%) and anemia being the most common indication. The only indication for the transfusion or PRBC is to correct or prevent tissue hypoxia. In moderate to severely anemic patients, transfusion neither increases hemoglobin nor the oxygen carrying capacity considerably[8]. The indication for and the degree of necessity of

PRBC transfusions cannot, however, be defined only on basis of the values of hemoglobin or hematocrit but must be based on factual clinical evidence. Mistreat of PRBC could be avoided by alternatives like proper diet and hematinics therapy whenever possible[2].

Platelets was the second most blood component(n=137, 35%) issued. Thrombocytopenia is the indication which could be explained as Davangere is an endemic area for dengue and dengue like illness[1].

FFP was the next commonly used product (n=95, 24%) and the most common indication being hypoproteinemia. High proportion of inappropriate usage of FFP has been reported in many studies despite availability of guidelines and is major problem worldwide both in developed and developing country [9-12]. FFP misuse results in wastage and subjecting recipients to unpredictable adverse effects. Whatever be the adverse effects, FFP appears to be cost effective for protein substitute in developing countries, compared to albumin therapy.

Whole blood was the least used component (3%). The only indication being acute blood loss in polytrauma. Availability of red cell concentrates has largely replaced use of whole blood. Specific use of packed cells instead of shotgun therapy of whole blood has the following advantages of diminished likelihood of congestive heart failure, less infused acid anticoagulants, fewer allergenic proteins, decreased chance of isosensitization which could compliance future pregnancies and transplantation [6,13].

CONCLUSION:

Blood component availability and safe blood transfusion is an achievable goal. To cater the timely need of blood and its components, it is important to know the trends of blood usage and ordering pattern in a hospital which is not constant. Thus periodic audit helps to set policies to improve transfusion services and planning blood donation camps. Inadequate and variable level of knowledge about transfusion practices among clinicians increases potential for misuse of blood. An active hospital blood transfusion committee must host frequent seminars and CMEs to educate clinicians and judicious implementation of guidelines to reduce inappropriate transfusion practices.

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