Proceeding

Blood Components Logistics Solution in Srinagarind Hospital, Faculty of Medicine, Khon Kaen University, Thailand

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Background and Objective; Over view of blood components for transfer to wards more than 80,000 units per year. Then the blood transfusion committee plan to re-arrange blood components logistics in Srinagarind hospital, Khon Kaen university. The aims of this study were to evaluate T/T (transferred per transfused rate) ratio compare with C/T (cross-matched and transfused) ratio, to control the proper temperature between transferring process and to evaluate the satisfaction rate of the staffs at ward who used our services.

Method; Time of logistics transferring was designed to 7 times per day. The information of types of blood components and number of requesting were collected from August to December, 2016. All data collected to Excel for calculate T/T ratio. The temperature was monitored every times of transferring. The satisfaction was sent to ward for evaluated.

Result: Total of red blood cell concentrates and plasma were requested 6,545 units. (Red blood cell concentrates 4,287 units/plasma 2,258 units). The T/T ratio of logistics blood components transferring of red blood cells concentrates and plasma were 1.23 and 1.04, respectively and compared to the C / T ratio of the two blood components were 1.6 and 1.8, respectively. The temperature between transferring process was 2-10 degree Celsius. The satisfaction rate was 95%.

Conclusion; The blood components logistics can reduce the C/T ratio; the time of this study T/T ratio was 1.23 (C/T =1.6; 2016). It can reduces the units supply and we can make sure the temperature for transferring is safe for quality of red blood cells concentrates. Also, the satisfaction rate is highly response.

Key Words: Logistics, Blood components

Introduction

Blood Transfusion Centre, faculty of Medicine, Khon Kaen university; there are 1,057 patients beds separated into 55 wards and with different physical characteristics. The location of the current Blood Transfusion Centre is a separated building from the hospital with such characteristics from the original transport or transfer of blood components to the wards, there are two types of surgery: the transport of blood components to the operating room. It is packed and transported by the staffs from Blood Transfusion Centre at 7:30 am of the day in order to

keep schedule of the planned surgery, the operating room will send the unused blood from them to the patient's ward, if blood components unused which will be collected by the staffs in the next morning. In case of wards want to use blood components, the staffs or medical staffs from each ward go to pick up the blood components from the Blood Transfusion Centre and carry to the ward. From the above information, it is evident that there are many personnels involved in the transportation of blood components to the ward. The medical staffs have to responsible for receiving blood components and also has to be responsible for receiving medication or medical supplies from other departments as well. Then , during transport of the blood component, temperature controlled must be make sure it was suitable for blood products and had a reasonable time before the patient because of these problems, hospital and Blood Transfusion Centre implemented a policy of the blood components logistics system to be safe and to maintain the quality of the blood components. This study aimed to evaluate T/T ratio compare with C/T ratio, to control the proper temperature between transferring process and to evaluate satisfaction rate of the staffs at ward who used our services.

Method

The goal in treating patients with a need for blood components is preventing unwanted things such as the risk of infection and bacterial contamination. The blood components must be of adequate quality before being transferred to patients who required blood components. Then Blood Transfusion Centre settled the staffs who were trained and warning in important noticed.

Logistics management planned

1. Brainstorming from relevant teams.
2. Provide equipments such as electric vehicles, ice and ice bucket for use in transportation of blood components.
3. Provide knowledge and training staffs to deliver blood components.
4. Implement the hospital to know the procedure and time of blood service with logistics.

Result

1. Number of logistics services.

The delivery of blood components, total 6,545 units. (red blood cells 4,287 units and plasma 2,258 units) were delivered at 7 interval times was shown in Table 1

2. T / T Ratio when using logistics system.

The number of blood units delivered to the ward were monitored the blood from the computer system, databases in Blood Transfusion Centre. The data can be analyzed comprehensively in August - December 2016 and August-December 2017. The T / T ratios of red blood cells and plasma were 1.23 and 1.04, respectively, compared to the C / T ratio of the two blood components were 1.6 and 1.8, respectively as shown in Table 2.

Table 1 Number of blood components delivered intervals time (Aug-Sep 2016)

Time	Red Cells (U)	Plasma (U)	Total/period (U)
10 AM	256	180	436
12AM	288	139	427
2 PM	557	93	650
4 PM	486	161	647
8 PM	191	135	326
20 PM	350	131	481
After 9 PM	2,159	1,419	3,578
Total	**4,287**	**2,258**	**6,545**

Table 2 T/T and C / T ratio in August to December 2016 compared to 2017

Type of Blood components	N (U)	Return (U)	Used (U)	T/T ratio Aug-Dec 2017	C/T ratio Aug-Dec 2016
Red Cells	1,207	224	983	1.23	1.6
Plasma	839	34	805	1.04	1.8

3. The results of temperature monitoring with logistics.

The temperature records during the official time were controlled. During transportation, it was in the range of 2-10 ^{0} C in every delivery units.

4. Results of Satisfaction Assessment.

From the distribution and storage of the satisfaction assessment of 34 wards received the blood in time and had highest level of satisfaction of 95%.

Discussion

Red cells, platelets and plasma all have important roles in medical care, high efficacy for their primary indications, and no obvious replacements in the future. They represent about 1% of the overall cost of healthcare, and about 2% of the cost of tertiary care centres.[1-3] Blood collection centres and hospital transfusion services will remain largely as they are in the future.

The logistics of delivery of blood components through the logistics system can control the temperature as required, reduce the C / T ratio and make the service users more satisfied. This can be used to plan the delivery of blood components in patients who have surgery or in patients with blood disease as well. Reduce the amount of blood preparations and prepare blood for patients who are overdue.

Conclusion

The blood components logistics can reduce the C/T ratio; the time of this study T/T ratio was 1.23 (C/T =1.6; 2016). It can reduces the units supply and we can make sure the temperature for transferring is safe for quality of red blood cells concentrates. Also, the satisfaction rate is highly response.

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