

Utilization of Blood Transfusion Services Provided by Al-Baha Central Blood Bank

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Abstract:

Introduction: Blood transfusion plays vital roles in the medical and surgical practice. Blood safety is one of the most important issues in blood transfusion. Blood and blood components are frequently ordered and utilized without proper analysis of the real needs. **Objectives:** The main objectives of this study were to evaluate blood transfusion utilization at Al-Baha Central Blood Bank during the period 2012 -2015. **Methods:** a retrospective 4-year analysis from January 2012 to December 2015 at Al-Baha Central Blood Bank. **Results:** In this study, the most common donors were Saudi donors (89.2%), volunteer blood donors comprised. The highest percentage (90.3%) of collected blood and 85.4% were crossed matched and issued to different hospital in the region. blood group O+ was the most commonly utilized type of blood. **Conclusion:** reviewing blood bank statistics are vital tools for a successful blood transfusion service, and recruitment of more volunteer blood donors are recommended. **Recommendation:** Continuous monitoring by applying the quality indicators such as Cross-match to Transfusion ratio (C: T), Transfusion index (TI), Transfusion probability (%T), of issued out blood will improve the blood transfusion services and will contribute towards effective blood utilization.

Key words: Blood transfusion services, voluntary blood donation, blood utilization, Al-Baha Central Blood Bank

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ملخص الرسالة:

مقدمة ان عمليات نقل الدم الدور الحيويفي الممارسة الطبية بنوعها الباطنيوالجراحي حيث يكون الطلب مستمرا على الدم ومشتقاته ولكن المشكلة في ان طلب الدم اصبح نوع من الروتين دون النظرة للحوجة الحقيقية لهذا اصبح من الضرورة عمل تقييم للموقف من جانب تجميع الدم واستهلاكهولهذا صممت هذهالرسالة لتقييم دور بنك الدم المركزي بالباحة في عملية تجميع وصرف الدم ومشتقاته حيث تم دراسة انشطتهلالأربع سنوات الماضية من العام 2012 وحتى نهاية العام 2015 وقد اوضحت الرسالة ان معظم الدم الذي تم تجميعه مثل السعوديين اكثر المتبرعين وقد كان التبرع طوعيا بنسبة 90%. كما اظهرت الرسالة ان النسبة الكبيرة من الدم (85.45) والذي تم تجميعه في الاربع سنوات الماضية قد تم صرفه لمختلف المستشفيات في المنطقة . وقد خلصت الرسالة لأهمية اجراء مراجعات لأداء بنك الدم المركزي بالباحة والتي تمثل اداء صحية لزيادة فرص نجاح عملية نقل الدم بالمنطقة كما اوصت الرسالة الى انه يجب متابعة مات م صرفه من دم ومشتقاته للجهات المستفيدة ليتم التأكد من استخدامه الاستخدام الامثل والرشيدي وذلك بتطبيق معايير الجودة المعروفة في هذا المجال

I. Introduction:

Blood transfusion plays vital roles in the medical and surgical practice.¹ Blood safety is one of the most important issues in blood transfusion. Therefore, the World Health Organization issued guidelines for control of blood transfusion, storage and donation. In May 1975, the 28th World Health Assembly (WHA) resolution WHA28.72, called on Member States to promote national blood programmes based on voluntary non-remunerated donations, and to promulgate laws to govern their operation. Increasing advancement in the field of Transfusion Medicine and Technology has necessitated enforcing measures to ensure quality of Blood and its products. The blood transfusion system has made significant advancement in areas of donor management, storage of blood, grouping and cross matching, testing for transmissible diseases, rationale use of blood and distribution etc. Blood and blood components are frequently ordered without proper analysis of the real needs. Such practices have greater implications in resource-constrained settings.²

Blood banking services in the Kingdom are hospital based, and most government hospitals derive blood from relatives and friends of the patients and less frequently from the volunteer donors.³ The General Directorate of Laboratories and Blood Banks of the Ministry of Health is the organization responsible for blood transfusion services in Saudi Arabia. The Ministry of Health funds the programme, and blood is given free of charge to all residents of Saudi Arabia.^{3,4}

In Al-Baha province blood transfusion service assumes regional character since the Central Bank , which is part of the major Ministry of Health Central Laboratories, supply blood products not only to the main hospitals within the city boundaries but also to smaller provincial hospitals. The responsibilities of Al-Baha Central Blood Banks include **i.** The collection of blood from donors **ii.** Testing the blood for infective agents **iii.** Processing of donated blood units and the preparation of packed red blood cells (RBCs), fresh frozen plasma (FFP), and platelets **iv.** Storage and issue of blood products. The aim of our study was to evaluate blood transfusion utilization at Al-Baha Central Blood Bank during the period 2012 -2015, and provide recommendations for improvement.

II. Methodology

Study design:

This was a cross sectional , retrospective descriptive survey of the blood transfusion services provided by Al-Baha Central Blood Bank during the period Jan 2012 – Dec 2015 which corresponds to 1433- 1436H .

Study population:

The system of blood unit collection by type of blood donors was of either ‘voluntary’ or ‘family/replacement’. All blood bank records reviewed for a 4-year period from January 2012 to December 2015.

Sample size:

The size of the sample was the records for a 4-year period of all donors who were recruited by Al-Baha Central Blood Bank at the period Jan 2012- Dec 2015.

Data collection:

The tool of data collection was a checklist containing all of the information required for the study. Data were collected using review of registers technique, the information collected included were; nationality and types of donors, number of units collected or cross-matched , number of units utilized or usage by clinical service was identified by the hospital location and blood groups of the donors. The data collected were statically analyzed for percentages of each item.

Results:

During the study period a total of (4513)units of blood were collected from both Saudi and non-Saudi donors, with Saudi constituting most of the donors (89.2%) **Fig (1)**. The highest percentage (90.3%) of collected blood were voluntary type of donation rather than familial or replacement types which constitute only (9.7%) as shown in **Table (1)**.

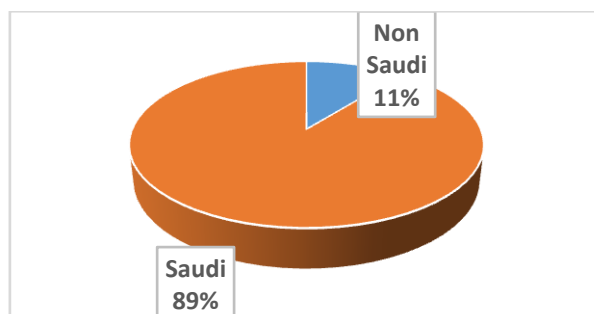


Fig (1) Nationality of Blood Donors

Year	Collected Units	Donors type	
		Voluntary	Replacement
2012	1180	1001	179
2013	1188	1068	120
2014	1132	1020	112
2015	1013	986	27
Total	4513	4075 (90.3%)	438 (9.7%)

Table (1): Types of Blood Donors

Most of the collected blood units (84.5%) were crossed-matched and issued out to different hospitals of Al-Baha province ; **Table (2)**, with Baljurashi Maternity and Paediatrics hospital constituting the higher rate of blood units utilization during the study period, followed by King Fahd Hospital, Al-Mandag General Hospital and Al-Hugra Hospital, while other hospitals such as Al-Mikhwa Hospital , Ghilwaha Hospital and Qudran Private Hospital rarely utilize blood units from the Al-Baha Central Blood Bank , except for the rare Negative types of blood groups . The most commonly utilized blood components was packed red blood cells followed by platelet concentrates

Year	Collected Units	Issued out Units
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2012	1180	923
2013	1188	986
2014	1132	982
2015	1013	923
Total	4513	3814(84.5%)

Table (2) Amount of Issued out Units Blood

Regarding the blood groups of blood collected , group O+ ,A+ and B+ constitute , 49%, 23% and 20% of the total blood units collected , respectively as shown in *Figure (2)* below.

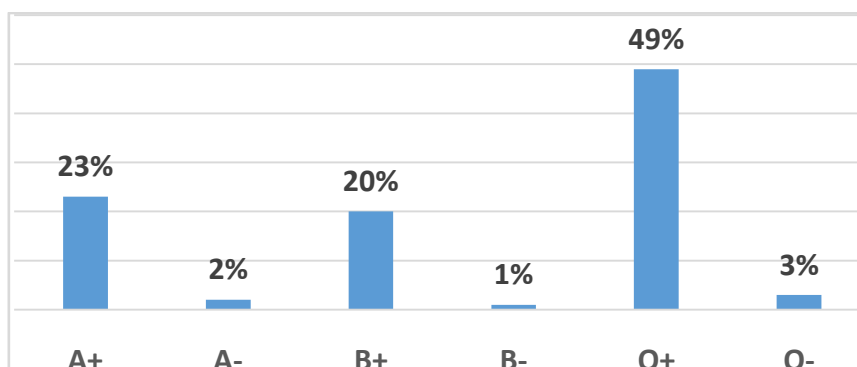


Figure (2): Blood Groups of the Collected Units of Blood

III. Discussion

In our study, we tried to attract the attention towards the transfusion practice conducted by Al-Baha Central Blood Bank and to blood utilization by some of hospitals in Al-Baha region. However, the results might not echo the actual transfusion practice. Continuous monitoring will help to supply safe blood and blood products to needy patients and prevent over-utilization of a scarce resource.⁶ The role of quality in transfusion practice is looked at three contexts: the blood collection centre, the transfusion service and clinical practice. All indicators have a part to play in maintaining quality, monitoring performance and ensuring safety and integrity for the recipient, donor and staff.

To our knowledge, Our study is the first study of this kind in Al-Baha region hence gives a clue and opportunity to comment on efficiency of blood donation and utilization and compare Al-Baha Central Blood Bank performance with others.

In this study both Saudi and Non-Saudi as resident in the area, contribute to donation of blood for saving lives , but due the nature and environment of Al-Baha region , that make it not attractive for foreigners as compare to other regions , so the number of non –Saudi resident was far less than the Saudi and this was reflected in their less contribution to donation (10.8%).

Blood donors are differentiated into: voluntary, family replacement, and remunerated or paid donors.⁸ Our study revealed that the voluntary donation is more predominant than other types (90.3%) this reflect that most of the Al-Baha resident were of young age, again Al-Baha is at high altitude area where most people have high red blood cell count and high haemoglobin content, this motivate them to voluntary donation as therapeutic measure to lower haemoglobin level. This finding is opposite to findings in a study done in Saudi Arabia⁹ , which stated, "the most common donors were replacement (46%) and statutory donors (35%), while volunteer blood donors comprised a lower percentage (19%).

In this study, the utilization of blood units were seen mostly by Baljurashi Maternity and Paediatrics hospital and King Fahad Hospitalas compared with less utilization in other hospitals for the period of study. This can be due nature of the attendants to these hospitals as they were pregnant and paediatric patient, and these group were classified as at risk for becoming anemic and need blood transfusions.

IV. Conclusion:

reviewing blood bank statistics are vital tools for a successful blood transfusion service, and recruitment of more volunteer blood donors are recommended again appropriate ordering and use of blood and blood components will contribute towards filling up of the gap between demand and supply.

Recommendation: Continuous monitoring by applying the quality indicators such as Cross-match to Transfusion ratio(C: T), Transfusion index (TI), Transfusion probability (%T), of issued out blood will improve the blood transfusion services and will contribute towards effective blood utilization.

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