

Audit of Blood Transfusion in Pediatric Unit of a Selected Private Medical College Hospital.

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ABSTRACT

"Audit of Blood Transfusion in Pediatric unit of a selected private Medical College Hospital" was a descriptive type of cross sectional study done retrospectively. Study done in Pediatric unit of Community Based Medical College Hospital, Mymensingh, Bangladesh. Study period July 2009 to June 2010 and Data collected from Hospital records through check list. Objective of the study was to find out whether WHO guide line was followed in Blood Transfusion or not and what proportion of admitted patient received blood transfusion, distribution of age & sex of the children who received blood and their indications. To determine the source of blood, types of blood groups & complications that have occurred due to blood transfusion. Key variables were Age & sex of the patients, Blood groups, Indications of Transfusions, Types of donor, Screening of donors blood, Types of Transfusion. The results of the study revealed that 88 patients received blood transfusions out of total admitted children of 2586. Which means 3.4% of the admitted children received blood transfusions. Indications of transfusions were many but patients of Thalassaemia received highest blood transfusions 28.4%, next predominant cause of blood transfusion was severe anemia of various causes, that is 25%. Male patients received more blood transfusions than female (Male 68.18% & Female 31.82%). Age group 1-5 years received highest blood transfusion (36.3%). Predominant blood group was B +ve. (35.2%). As per WHO guide line partial screening of the blood prior to transfusion was done. But one encouraging finding of the study was that all the blood donors were voluntary blood donors. Multi centered large sample study is needed to pass a comment on over all blood transfusion situation in pediatric patients in our country. This study will help improving the quality of blood transfusion service in the study hospital & will encourage other to do the same

type of study to compare their findings. This type of study not done before in our country.

KEY WORDS :- Blood Transfusion, Clinical Audit, Thalassaemia, Donor, Blood donation, screening of blood, Blood Transfusion services etc.

INTRODUCTION:

Clinical audit is a process by which doctors, nurses, and other health-care professionals systematically review the procedures used for diagnosis, care, and treatment against agreed standards, examining how associated resources are used and investigating the effects care has on the outcome and quality of life for the patient¹.

Clinical audit is a process that has been defined as "A quality improvement process that seeks to improve patient care and outcomes through systematic review of care against explicit criteria and the implementation of change"².

The key component of clinical audit is that performance is reviewed (or audited) to ensure that what should be done is being done, and if not it provides a framework to enable improvements to be made. It had been formally incorporated in the healthcare systems of a number of countries, for instance in 1993 into the United Kingdom's National Health Service (NHS), and within the NHS there is a clinical audit guidance group in the UK³.

The transfusion audit (i.e. clinical audit) is a quality improvement process that seeks to improve patient care and outcomes, through the systematic review of the use of transfused blood components against transfusion guidelines. The audit is a systematic, critical analysis of the quality of care which will include the procedures used for the diagnosis and treatment of the patient, the use of available resources, as well as the outcome and change in the quality of life of the recipients. The aim of this process is to create a culture of delivering a quality service to patients whereby medical care will be improved on a continuous basis.

Blood donation is one of the best gift that a person can offer for his family, friends, relatives neighbors. Beyond doubt it is a noble act. Donate blood & save lives is a famous slogan carrying an important message for the shake of humanatarism.

Blood donation saves lives and reduces morbidity of patients. Any person above eighteen years with good

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physical condition can donate blood once in every four months.

Because of enormous advancement in science & technology blood substitutes are developed but yet they are far away from natural blood & until now it is irreplaceable.

Blood transfusion became a life saving therapy in second world war & since then it has become a routine hospital function.

There are many conditions where blood transfusions are required namely Acute haemorrhage during and after operation & in trauma or accidents. In Thalassaemia, Leukaemia, Haemophilia, Aplastic anemia, Severe anemia etc. No general or specialized hospital can run without blood transfusion facilities. Hospital authority is highly responsible for arranging blood transfusion when & where necessary⁴.

The annual demand of whole blood in Bangladesh is estimated about 200,000 to 450,000 units (a unit is equal to 350-450 ml)⁵

The demand is increasing at a rate of 10% in every year. To fulfill the demand there are four types of blood donors 1. Paid donor or professional donor 2. Party donor (Relatives of the recipient)³. Voluntary donor (Non remunerated donor)⁴. Exchange replacement donor⁵.

Unfortunately 75% of the demand of blood fulfilled in our country by professional donor, 10% is fulfilled by voluntary donors & rest by others. From these 75% professional donors about 20% of them carrying Hepatitis B virus, 6.2% carrying Hepatitis C virus, 21% carrying STD'S⁵.

So professional's blood are very unsafe. Transfusing such infected blood many a times produces serious complications. So we prefer blood from voluntary donors. Good equipped blood bank is essential for safe transfusion.

Though we are far away from 100% safe blood transfusion but significant improvement has occurred so far. Some attitudinal change in the community has been observed. Voluntary donors are increasing day by day. Screening of blood is done in many centers of our country. A well organized , centralized service is able to plan & adjust the size of the national blood service.³

METHODOLOGY:

It was a descriptive type of cross sectional study, study done in Pediatric unit of Community Based Medical college Hospital, Mymensingh, Bangladesh. Study period from June 2009 to June 2010. Study population are those children who received blood transfusion during the study period. Sample size was eighty eight. Data were collected from the hospital record. Data collection instrument

was check list, record review. Data analysis by scientific calculator.

RESULTS:

Number of patient admitted to the pediatric unit of the study Hospital during said study period was 2586 & out of them 88 (3.4%) received blood transfusion.

Table 1 : Distribution of age who received blood transfusion.

Age	Number	Percentage
< 1 month	11	12.5
1 – 12 months	27	30.6
1-5 years	32	36.3
5-10 years	15	17
10-15 years	03	3.4

From Table-I it is evident that 1-5 years age group of patients received highest blood transfusion which is 36.3% & next highest 1-12 months of age group of patients, which is 30.6%. It is obvious that male children received more blood transfusion than female children and male : female ration is 68.18% : 31.82%

Table 2 : Distribution of blood groups.

Blood group	Number	Percentage
A Positive	28	31.8
A Negative	Nil	Nil
B Positive	31	35.2
B Negative	Nil	Nil
O Positive	22	25
O Negative	02	2.2
AB Positive	05	5.6
AB Negative	Nil	Nil

Table 2 shows B positive blood were mostly prevalent group, which is 35.2%

Table 3: Distribution of causes of blood transfusions.

Causes	Number	Percentage
Severe anemia	22	25
Haemorrhage	0	0
Sepsis	14	15.90
PEM	16	18.18
Kala Azar	02	2.2
Thalassaemia	25	28.4
Acute Lymphoblastic Leukaemia.	02	2.2
Thrombocytopenia (ITP)	01	1.14
Other Hemolytic anemia	0	0
Hemophilia	01	1.14
Nephrotic syndrome	02	2.2
Malaria	02	2.2
Chronic liver disease	01	1.14

From table 3: it is clear that commonest indication for blood transfusion was Thalassaemia (28.4%). Second common cause was severe anemia (25%)

Table 4: Screening of donor's blood.

Screening test	Done	Not done
Hepatitis B	88	0
Hepatitis C	0	Not done
Syphilis	88	0
Malaria	0	Not done
HIV	88	0
Other tests	0	0

Table 4 shows that screening test for Hepatitis B, HIV & syphilis done for all but other tests not done, which indicates that WHO standard not maintained. It was a major pitfall.

Table 5 : Distribution of types of blood transfusions.

Types	Number	Percentage
Whole blood	63	71.5
Packed cell	25	28.4
Plasma	0	0
Platelets	0	0

Table 5 shows whole blood was used mostly for transfusion purpose. No serious complications were faced after transfusion, indicates blood group & cross matching were done properly & prior precaution were adequate.

Table 6: Distribution of donors.

Donors	Numbers	Percentage
Relatives	35	39.77
Medical students	53	60.23
Professional	0	0

Table-6 shows blood donors were 100% non professional. Which is very much encouraging.

DISCUSSION :

This is a descriptive type of study. The study done in Pediatric unit of Community Based Medical College, under Mymensingh district in Bangladesh. The study period June 2009 to June 2010. Data were collected from the hospital records according to a check list. During this period 2586 patients were admitted in Pediatric unit and out of them 88 received blood transfusion for various reasons, which means 3.4% received transfusion.

Table 1 showing distribution of age who received blood transfusion. From the tabulated data it revealed that 1-5 years age group patients received most blood transfusion, accounting 36.3%. Next common age group received blood transfusion was 1-12 months which is 30.6%. 10-15 years age group received least blood transfusion accounting 3.4% from data it is obvious that male children received more blood transfusion than female . Male : Female ratio is 68.18% : 31.82%

Table 2 shows B positive blood were mostly prevalent group, which is 35.2%

But conventionally blood group frequency is A- 40%, B-10%, AB-5%, O-45%.⁶

From table 3 it is clear that commonest indication for blood transfusion was Thalassaemia (28.4%). Second common cause was severe anemia (25%). In Nigeria one year clinical audit of transfusion indicates that severe anemia is the prime cause for blood transfusion.⁷

Table 4 shows that screening test for Hepatitis B, HIV & syphilis done for all but other tests not done, which indicates that WHO standard not maintained. It was a major pitfall. But in all developed countries blood transfusion with out proper screening is never done now a days.

Table 5 shows whole blood was used mostly for transfusion purpose next to which was plasma. In our country we use mostly whole blood. But a study done in Nigeria revealed that they mostly use different component of blood and mostly misused component was platelet. Indiscriminate use of blood and blood products are to be avoided.⁷

No serious complications were faced after transfusion, indicates blood group & cross matching were done properly & prior precaution were adequate.

Table 6 shows blood donors were 100% non professional. Which is very much encouraging. Blood Transfusion Service (BTS) is an integral and indispensable part of the healthcare system now. The priority objective of BTS is to ensure safety, adequacy, accessibility and efficiency of blood supply at all levels.⁸ As previously number of professional donors were more Transfusion transmitted infections were also more.⁹

Quality management of a blood transfusion service starts with safe donor recruitment and donor care. In the South-East Asia region (SEAR) almost all countries except Thailand depend heavily on replacement of blood from relatives and friends. Most of these countries except Bangladesh have ruled out the paid-donor system; however replacement donation still exists. Lack of resources, lack of professional management, myths and misconceptions arising from cultural and social differences form a barrier to blood donation. Most of the countries still do not have a National Blood Policy and/or a well planned blood program. Besides recruitment, the donor screening and donor management are also not well addressed¹⁰.

Now the Bangladesh BTS is receiving help from WHO, the International Society of Blood transfusion (ISBT) and the South Asian Association of Transfusion Medicine (SAATM) to achieve targets. It is widely expected that Bangladesh BTS will be able to supply safe blood from voluntary blood donors to all parts of the country in timely manner in sufficient quantity.⁹

CONCLUSION.

From the study the following conclusion may be drawn :- Significant number of pediatric patients were transfused blood for various indications, commonest indications was Congenital Hemolytic Anemia (Thalassaemia) and the second most common cause of transfusion was severe anemia.

Male patients received more blood transfusion than female patients and whole blood transfusion was given in around 70% of patients.

All were voluntary donors but WHO guide line for screening of blood was not followed. Recording and documentation was poorly maintained.

The following recommendations are made based on the findings of the study in order to improve safe blood transfusion services in study hospital and in for other hospital-

1. Systematic regular audit of the blood transfusion service to be done regularly in study hospital and all other hospitals to find out the deficiency of transfusion services.
2. Record keeping system in study hospital & all other hospitals should be accurate, perfect and updated and well maintained.
3. Strict WHO guide line to be followed in all center in blood transfusion and which to be ensured.
4. Time to time training of the related technical persons to be given to keep them updated with recent knowledge and technology.
5. Awareness campaign for voluntary blood donation to be done in a regular fashion.
6. Awareness campaign for blood recipients is also advocated.
7. Indiscriminate use of blood and blood products to be discouraged.
8. Long term follow up of the patients who received blood transfusion may be arranged for research purpose.

9. Regular supervision of the Blood transfusion centers by the competent higher health authority may be very effective for safe transfusion services in our country.

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