



## EVALUATION OF THE INDICATION AND COMPLICATIONS OF BLOOD TRANSFUSION IN MATERNITY AND PEDIATRIC HOSPITAL IN AL-NAJAF GYNECOLOGY AND OBSTETRICS DEPARTMENT

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### ABSTRACT

The use of 100 units of blood in 100 patients received over a period of 3 months from the beginning of February to terminal of April. Reaction reported after transfusion of 100 units of whole blood only. 38 case of transfusion reaction occurring at maternity and pediatric hospital in Al-Najaf. Fever and chills was commonest manifestation and the most frequent presenting symptoms 70 patients develop reaction with few minutes of starting of transfusion with few drops of blood. 3 patient develop reaction after finishing transfusion with few minutes 5 patient develop reaction during transfusion. All pregnant women had more reaction occur in blood group O +ve more reaction occur with frequent blood transfusion. Indication for blood transfusion more in anemia. 36% inappropriately transfused. 1.2% incidence of blood transfusion reaction in hospital.

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## INTRODUCTION

### Historical review

The association of shedding of blood with death is deeply rooted in the earliest writings, fear of bleeding is a natural reaction which comes instinctively to all. The earliest known therapeutic attempt at blood treatment was an effort to save the life of the dying pope eurocent v III in 1492 by having him drink the blood of three healthy bodies. The 3 donors died, as did the pope. In 1615 libarius proposed technique for, Artery to Artery administration of blood for the treatment of a patient exhausted in strength, weak, enervated, scarcely breathing. This was before Harvey's description of circulation, published in 1628. The first transfusion in to an animal was performed by lower in 1665. In 1667 Jean – Batiste Denis performed the first transfusion in to a human patient, using the blood of a lamb-In a subsequent experiment a patient received blood from the same source, an unpleasant reaction ensued. With a plentiful? Sweat and great pain in his kidney this important description of the world first hemolytic transfusion reaction set the stage for struggle, still with us today. To find the right balance between lifesaving transfusion and life threatening complications of transfusions gone wrong.

After the death of one of deni's patients, he suffered for year litigation with an ungrateful window, transfusion was discouraged in France, it was 150 years age later ? (1828) before Blundell made the first successful blood transfusion in post-partum hemorrhage by direct transfusion. First successful transfusion made for obstetrical patients. From one human to another attempt to emulate his life saving procedure led some successes and many unexplained failure. It was not until land Steiner's discovery in 1900 of what we now know as the ABO groups. That there was rational explanation. So that blood could be stored and used for indirect transfusion due to development of non toxicarnri coagulants and discovery of red cell groups ages. During world war 1, Rous and turner founded that hemolysis developing in blood collected in sodium citrate could be retarded by the addition of sugars (Chanavin *et al.*, 1976). Sterile blood collected in citrate and glucose and refrigerated for up to 26 days was used by Oswald Robert son, then a young physician in the U.S. army to treat casualties during world war I. In 1937 described the establishment of blood bank. For collection – storage and comp ability testing of blood for transfusion therapy (penington *et al.*, 1984). Blood transfusion play am ajar role in world war II. To Americans relied unduly on the use of plasma for reasons that are not clear it was not until invasion of Europe with landing in Italy that the superiority of whole blood over plasma was officially recognized also experience with whole blood in Spanish civil war and by the British civilian early in work war

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II (Lazarm *et al.*, 1977). The essential precursor to the concept of blood banking first put into practice in 1917. The first organized blood donor service followed in 1921 and by the 1930, a number of blood banks had opened although most transfusions continued to be the direct variety with the donor lying next to the patient, a well-known complication of these early blood transfusions the transfusion of syphilis a factor which led to the routine serological screening of blood – important advances include the discovery that plastic blood collection containers reduced bacterial contamination to acceptable levels and facilitated the centrifugation of blood for separation of plasma and other components. That plastic containers permitted the simple removal of plasma from donor blood and transfusion of red cells (plasma apheresis) and that plasma apheresis need if possible to collect large volume of plasma for fraction, that was possible to prepare four basic components from donations of whole blood (red cells, plasma platelets and cryoprecipitate) and the systemic use of this technology (component therapy) would become the corner stone of modern blood banking that the post-partum treatment of RhD negative mother could prevent sensitization to D Ag. (Bernard *et al.*, ?).

**Islamic principles and blood transfusion:** At the second Amman work shop on blood donor motivation and blood collecting, Dr. Mahmood Sartway presented a paper entitled Islamic ruling's on blood transfusion. While spilled and the status of impurity doesn't apply to it. Blood transfusion between a man and his wife will not invalidate their marriage. God says " whose quickened a human being, it shall be as if he had quickened all mankind ". It is forbidden to sell blood, however, if a person who is fit to do not blood refuses to do so without payment, it was permissible to pay on the part of the payer but the payer commits an offence by mixing a bad deed with a good one. Giving blood doesn't invalidate fasting, giving blood by transfusion to fasting person does not invalidate the latter's fast. Islamic law urges every Muslim to be in constant support of his brother and even makes such support a legal requirement in many cases.

According to a hadith (saying) by The prophet Mohamed (peace be upon him) says: " cupping is a most useful type of medical treatment ". He also says : " if any of your methods of treating the ill is effective an incision by a phlebotomy scalpel is certainly one ". (WHO,1994) Islamic rulings on blood transfusion Dr. M. St However, since Islamic law is meant to regulate acceptable human behavior, it is imperative to arrive at ruling with regard to incipient medical issues such as organ transplant, in vitro fertilization (test tube babies), Surrogate motherhood, sterilization, blood transfusion etc. Drawing blood by a syringe is similar to drawing it through phlebotomy; yet the blood taken by syringe from one person can be beneficially used by transfusion into the veins of another person, while phlebotomy remains short of this never the less it should be mentioned here that putting this Islamic view into practice is so subject to certain medical conditions such as:

- Donation must not be harmful to the donor. As in case when the donor is young or anemic.
- No blood should be given to a patient unless it is seen to benefit him. (William *et al.*, 1977).

**Appropriate blood transfusion:** Patient who need blood products, whether for preservation of life in acute situations or for supporting health in chronic hematologic disorders, must

receive what they need. There are 3 general transfusion abuses: use of blood products when not required, use of too little, or too much, in patient who do require transfusion, and use of the wrong products in patient require transfusion 3 factors underlie this problem.

- The decision to transfuse is usually made by doctors who have not had specialist training in blood transfusion.
- Transfusion practice is generally learned from colleagues in particular area of specialty and different specialties may thus have developed different transfusion styles and.
- Transfusion therapy is not effectively taught in medical schools.

### Common mistakes in transfusion therapy

- Preoperative transfusion of anemic patient.
- Routine use of components (e.g platelets cryoprecipitate during major surgery).
- Over use blood, while overlooking volume expanders such as saline or dextran in treatment of acute blood loss.
- Inflexibility with regard to the choice between whole blood and red cells.
- Inadequate treatment of patients need specific component (e.g patients with hemophilia leukemia, severe burns, etc.).
- Waste full use of albumin, when Dextran or saline could be equally effective.
- Use of blood in chronic anemia, when specific treatment of the anemia would be safe and more effective.
- Use of plasma as a volume expander, when less costly (saline) and safer (Dextran, albumin) effective alternative exists.
- Use of concentrates to treat mild hemophilia when effective alternatives exist (e.g DDAVP).
- Use of homologous blood in patients who could conveniently have made autologous donations prior to elective surgery.
- Transfusion of one unit of blood during elective surgery. Cross matching blood for procedures where it is most unlikely to be needed (e.g. cholecystectomy caesarean section).

### Criteria of appropriate blood transfusion of whole blood

- Overt bleeding with clinical sign of hypovolemia.
- Overt bleeding with acute decrease of Hb %.
- External bleeding confirmed by gynecologist.
- Refractory anemia iron, folic acid, B 12 that meant be corrected Hb.
- Symptomatic refractory anemia.

**Indications for transfusion therapy:** The clinician is confronted with four major decisions.

- Whether to transfuse.
- What to transfuse.
- How much to transfuse.
- How soon to transfuse.

In general there are several clinical indications for transfusion therapy. One is the need to restore and maintain the volume of circulating blood to prevent or treat shock as in hemorrhage or trauma. Another is the need for specific cellular or protein components factors or platelets. Exchange transfusions may be required to remove deleterious materials from the blood. Blood is also used to maintain the circulation as in extra corporeal or cardiac bypass shunts hemorrhage shock. A major indication for whole blood transfusion is extent or anticipated recurrent hemorrhage however an indication of the severity of a hemorrhage may be obtained from changes in blood pressure, pulse rate, and hemoglobin level. Symptoms of severe blood loss include pallor, sweating, thirst, headiness, air-hunger and restlessness (Williams *et al.*, 1972). A helpful guide to blood loss in acute hemorrhage is the systolic B.P, if this is below 100 mm Hg. The blood volume is probably less than 70% of normal. The average patient may compensate for blood loss of up to 1,500 ml by vasoconstriction and may appear normal if lying flat. The pulse rate is not a reliable guide to blood loss but a persistent pulse rate of 100 or more per min in a patient with hemorrhage probably indicates blood volumes less than 80% of normal. Measurement of Hb level is helpful but may be misleading reduce level 3 and 6 h after hemorrhage suggest significant blood loss. Clinical and experimental observations in hypovolemic shock suggest that the combination of packed red cells with crystalloids or albumin is effective as whole blood in correcting hypervolemia.

### **Surgery**

The loss of 500 ml of blood during a surgical procedure is well tolerated by the average patient. Patients undergoing major surgery with blood losses greater than 1000 ml who were managed without blood transfusion. They were treated instead with Hartmann's solution lactated ringer's solution, NaCl, 102 meq/liter. KCl, 4 meq/ liter. CaCl<sub>2</sub> 3.5 meq/liter and sodium lactate 27 meq/ liters, using 2-3 times the volume of blood lost. These findings regarding hem dilution in surgical hemorrhage may be relative rather than absolute further, more if transfusions are indicated, red blood cells may be preferable to whole blood the amount given based upon quantity of blood loss.

### **Burns**

Although there is not a consensus colloid (plasma albumin, etc.) and crystalloid solutions appear to be in acute Burns, or can be treated by colloids or blood.

### **Anemia**

In most cases, anemia even-when developing quite rapidly will not cause symptoms sufficiently serious to justify urgent blood transfusion unless hemoglobin level is below 4 to 5 g Re-100 ml when transfusion is indicated, red blood cells should be administered. Multiple, repeated transfusion of whole blood or packed red cells have been used to suppress erythropoiesis in patient with sickle cell anemia or thalassemia.

The complication of transfusion side effects may limit the usefulness of this method of managing the hemoglobinopathies.

### **Ideal method of collection**

Blood donors should give their blood voluntarily and without expectation of payment. Donor programs which rely

entirely on volunteers are difficult to create from nothing. 3 general truths underlie the organizational approach to this task. 8 people do not give blood unless they are asked to do so. People are not naturally novitiate to donate their blood. There are more than enough to be true blood donors. Prior to blood donation, the hemoglobin or hematocrit of each prospective donor must be evaluated. Those whose hematocrit is too low must be deferred. It is simpler and safer to set just one standard, equivalent to the lower end of normal range for women during their child bearing years. Typically this may be 12.5 g/100ml Hg b (Hct 38%). Other essential tests include major blood grouping (ABO and Rh, although Rh/O group) may be omitted populations with a very low incidence of Rh (D) negative Revisers) all donors must be screened for the appropriate markers of transfusion infections syphilis, hepatitis B (surface antigen, core antibody, hepatitis C HIV infection HTLV- infection tests of liver enzymes after selection of donor. The blood will continue to run into bottle until the pressure in the bottle equals the raised venous pressure produced by the cuff on the donor arm. If the cuff is now released lowering the venous pressure, the flow will be from the bottle back to the donor and this will suck in a variable amount of air. This complication does not occur if blood is collected into closed system such as plastic bags. Young people occasionally feel faint on standing up. If this has happened before they should rest at least 15 minutes after the donation. Normally 420 ml of blood is taken into anticoagulant which is either citrate-phosphate dextrose or acid citrate dextrose. Generally blood is preserved for up to 21 days without excessive loss of viability with both anticoagulants. Each bottle of blood tested serologically for presence of hepatitis associated Ag and for syphilis, AIDs, The ABO and R(d) group is rechecked. The serum is tested for a typical antibodies and serum of group O donor for Anti A or B hemolysis-ns. (Soland *et al.*, 1995) When patients are blood group their sera should also be screened for atypical antibodies against an appropriate red cell blood. For transfusion, blood of same ABO and Rh group is selected. The red blood cells from each donor unit are tested against the patient's serum (major cross match).

### **In each test the donor's red cells are incubated with recipient's serum**

- Saline at room temperature to detect cold and to end allo antibodies.
- Saline at 30 °C to detect any clinically significant cold antibodies.
- Saline at 37 °C to detect complete warm antibodies.
- Albumin addition at 37 °C to detect incomplete warm antibodies.
- An-enzyme technique to detect incomplete warm antibodies in the means system.
- The indirect antiglobulin technique at 37 °C used to read the test must have broad spectrum specificity. Under normal circumstances the tests are incubated for one hour. Urgent provision of blood when blood is required under emergency the same tests but reduced incubation time, should not be less than 15 minutes. The sensitivity of the test will be increased by centrifuging the incubation mixtures at 1000 rpm for one minute, resuspending the cells and reading in the usual way. (Jerry *et al.*, ?) General information, to be obtained from all donors.

- Name, address, telephone, employer, etc.
- Date of last donation C frequency of whole blood donation may be from 2-6 times/y.
- Intervals may be from 8 weeks to 6 months. The interval should not be less than 8 weeks.
- Dare of birth (age) to ensure that donors are not too young or too old donate. Minimum age of 18 years is commonly prescribed.

Each donor must ask about.

- Jaundice, live disease.
- Transfusion, transplantation.
- Exposure to hepatitis.
- Malaria.
- Outside the country to detector carrier of malaria, hepatitis B, AIDs.
- Serious illume, cardiae or vascular disease.
- Surgery, medical care, pregnancy: current pregnancy is disqualifying. Blood donation is inadvisable until at least six week after full term delivery.
- Feeling well today.
- Dental work, medications: oral surgery is assumed to cause temporary bacteria .
- Deferral problems donating.
- Vaccinations-V with killed viruses are not disqualifying.
- Respiratory infection
- Other names
- HIV / AIDS
- Female sexual practice.
- **Syphilis / gonorrhea:** these infection are temporarily disqualifying for a period of 12 months.

### Mode of administration

The most important action the clinical can take before adminestaring blood or blod product is to read the labef to verify that the unit to be used is the one selected by the labrotary for the patient. Blood need not be warmed before use unless unusually large amounts must be given (more than 3 liters) at a rapid rate (greater than 100 ml per min) with the usual rate of administration (500 ml per 1 to 2 h) the agglutination that may occur in patients with high titer cold agglutinins is usually dissociated as the transfused blood equilibrates to body temperature. Blood should be administrated slowly during the first 30 min so that if an untoward reaction occurs, the transfusion can be discontinued before too much blood is given, it is perfectly safe to transfuse 1.000 ml of citrated blood within a period of 2 to 3 h in the average patient without cardio vascular diseasmost transfusion therapy is administered intravenously. A vein in the forearm or antecubital fossa is ordinarily used. Other routes are intra-arterial, intra peritoneal and intraosseous. (Milner *et al.*, 1983).

### Individuals whose risks factors Require exclusion from blood donation

- Male who have had sex with other males.
- Male and female oustitutes.
- Males and female whose sexual activity is indiscriminate.
- Males who have used prostitutes.

- Intravenous during abusers.
- People with hemophilia or thalassemia.
- Sexual parthers of any of the above.

### The complication of blood transfusion

No transfusion should be administered unless the benefits to be gained out weight the risks involved, and until simpler and safer therapy has proved ineffective or impossible under the circumstances. A transfusion may fail to achieve its objective because of inadequate survival and/or clinical effectiveness of the component being transfused. This may occur because of inadequate preparation to the ability of the product of it may relate appropriate blood component. Even under the best circumstances, the use of blod carries a high risk for the recipient untoward reaction to transfusion appear to occur in about 5% of case. The incidence of transfusion reactions can be significantly reduced by using components rather than whole blood, for example, the use or red blood cell preparations rather than of whole blood will significantly reduce the frequency of circulatory overload, citrate and ammonia intoxication, and some forms of febrile or allergic reaction. Transfusion reaction may be categorized as being either immiateor delayed in type. Immediate transfusion reaction. (Milner *et al.*,1983 ) symtoms of an immediate reaction begine within minules to hours and are nonspecific with respect to etiology and may include chills, fever, urticarial, tachycardia, dyspnea, nausea and vomiting, tightness in the chest, chest and back pain, hypotension, bronchospasm, angioneurotic oelma, anaphy lexis, shock pulmonary edema, and congestive failure. In the anesthetized patient undergoing surgery, an immediate transfusion reaction may manifest itself as generalized oozing and inability to correct shock by the administration of blood, immediate transfusion reaction may be.

- Aemolytic
- Febrile
- Allergic
- May be due to contaminated blood.
- Hemolytic transfusion reactions

Hemolytic reactions may be associated with signs symptoms such as fever, low backache, sensations of chest compression, hypotension, nausea and vomiting, 2 mechanisms may account for hemolysis of transfusion. Used red cells. 1-Intravascular breakdown most commonly due to an in compability of ABO system. 2-Destrncricn occurring in the extra vascular space i.e. the reticula endothelial system of the spleen, liver, and bone marrow. Abnor of bleeding due to a consumptive coagulopathy may develop in one-half to one-third of patient who develop major intravascular hemolysis following an incompatible transfusion. The laboratory diagnosis of hemolytic reaction is based on evidence of hemolysis hemoglobinemia and/or hemoglobinuria and of a blood incapability cantiboils in the recipient reaction with blood groups antigens on the transfused red cell-the plasma (brown). The unit should be examined for (Hb). The entire typing and cross-match procedure should be repeated to identify the blood group incompatibility. The serum of the patient tested for the presence of blood group antibodies. With delayed hemolytic transfusion reactions the principal clinical signs are honest of jaundice and progressive development of anemia- the reaction occur a few days after the transfusion and are associated with a positive direct antiglobuline reaction combs' testy.

The major effort in hemolytic reaction should be direct toward control or bleeding if it is present and prevention of acute tubular necrosis, if bleeding due to defibrination the use of heparin has been advocated to inhibit intravascular coagulation, particularly in pregnant women, and the depleted coagula factors should be restored by transfusion of fibrinogen-rich cryoprecipitate, platelet concentration and fresh frozen plasma. The prevention of renal complications depends on maintaining renal blood flow systolic blood pressure should be sustained above 100 mm hg if necessary by transfusion, and mautil brompty adminstratied to achieve and maintain urine flow of 100 ml/h. If manitol does not prevent anuria. The standard measures for an anuvie patient should be institated.

- Restrict for fluid intake
- Administer 100 g of carbohydrate preday to avoid ketosis and decrease the catabolic rate.
- Control hyko-kalemin.

### Febrri reactions

A febrile response associated with the admistration of blod may be due to a hemolytic reaction sensitivity to leukocytes or platelets, bacterial pyrogens, in many cases to some unidentifiable causes. Febril reaction due to bacterial pyrogens have because rare with the wido use of commercially manufactured dvposable transfusion equipment. The clinical decision to stop the administration of blood in a febrile reaction is difficult one. Many but not all febrile reactions can be tolerated by the patient with supportive care, eig, antipyretics, antihistamines, a chill. However may heralded amore serious reaction such as a hemolytic reaction or may implygrosslycontaminatedblood.

### Sensitivity to lenkocytes and platelets

A frequent cause of anonhemolytic febrile reaction is sensitizing to with cell or platelet antigeusm clinically there is of blood or shortly thereafter. The temperature continue to for 2 to 6 h, safer cessation of transfusion and this fever may persist for 12 h. Although a reaction due to leukocyte antigens has a good progresis it may be confused with hemolytic transfusion reaction non hemolytic febrile reaction are relatively frequent and are estimated to represent up to 30% after reaction at least seven transfusion are usually required to induce sensitization to leakocyle aurtgents in men, non parous womery or child-in gravid or porous women reaction may occur with first or second transfusions treatment is supportive, without pyretic such as aspirin, and preveunue with subsequent transfusions utilizing lrnkocte-poor or HL a poor blood.

### Allergic reaction

Allergic reaction occur in about 1% of all transfusions. They are typically characterized by sudden ovser of large wheals surrounded by area of erythema-headache, pyrexia nausea, vomiting, dyspnea, edema or N face smelling of mucous membranes, in most cases. The patient gives a history of previous transfusion of blood or plasma. Allergic reaction are often due to anti-Iga antibodies in the patients circulation which reach with IgA in transfused plasma. Two type of antibody are recognized. The more common type occurs more frequently in multe-transfused patients and women who have one or more pregnancies.

The second type of antibody which is class specific and reaction with all IgA idiotypes is found in subjects who lack is IgA in their serum. The antibody titre is high and it may be detected by the use of immune precipitatim techniques reaction are usually sever-both types of anti-IgA antibody are IgA and bind complement. Treatment is mild reaction the transfusion is slowed and adrenaline and antihistamine drug are administered-with more sever reaction the transfusion is stopped and hydrocortisone given IV in addition to adrenaline and antihistamines. Reactions in patients with a history of allergic episodes after transfusion or injection of foreign substances may often be prevented by using washed packed red cells and administration of antihistamine and cortico steroids before transfusions.

### Circulatory over load

Circulatory over load resulting in pulmonary congestion and acute heart failure is a most important complication of transfusion and is the most common cause of death following transfusion. The risk of circulatory overload is particularly high in patient with chronic anemia and in elderly, the very young and in those with cardiac or pulmonary and in those precaution necessary to minimize circulatory overload and the importance of giving packed red cell rather than whole blood most often clinical picture is that of acute pulmonary oedema. Treatment the transfusion is immediately is discontinued and the patient is dropped up in bed digoxin, diuretics, morphine I.V, O<sub>2</sub>; if no response, rotating tourniquets or venesection are used in desperate cases intubation and positive pressure respiration usually bring relief.

### Bacterial contamination of blood

Blood may be contaminated by cold growing organism (pseudomonas or colon-aerogenes group) by entrance of contaminated or in to the blood collecting equipment's or from bacteria on the skin of the phlebotomized donor. These microorganisms are ubiquitous, have ability to grow at 4° and are able to utilize citrate as a primary sours of carbon. The infusion large number of gram negative microorganisms results in a serious reaction accompanied by fever, marked hypotension, pain, vomiting, diarrhea, and possibly development of profound shock.

The reaction may start with shaking chills following a latent period of 30 min or more. As little as 50 ml of blood may contain sufficient microorganisms to produce the reaction spec tic shock is a complex disorder involving abnormalities of O<sub>2</sub> transports, peripheral perfusion, myocardial function and metabolism as well as activation of blood coagulation, complement, kallkrein, kinins and fibrinolysis. The transfusion must be stopped immediately, and comprehensive supportive therapy is essential once the diagnosis is made treatment is often ineffective and heroic measures are required the fatality rate with this type of over whelming shock is estimated to be from 50-80%.

**Air Embolism:-** Air embolisms is now area complication of transfusion therapy because of the introduction of plastic equipment which provides a closed system. In the symptoms associated with air embolisms include pain, cough, and sudden onest of dyspnea treatment consist of clamping off administration tubing and placing the patient on his left side in the head-down poisons so the air in the right ventricle flows away from the pulmonary out flow tract.

## Complications of massive transfusion

Patient receiving massive transfusion (e.g 5l or more) are liable to certain special complication the most important of which are cardiac arrhythmias which may proceed to ventricular fibrillation and cardiac arrest-a number of factor are considered to be important in this complication, these factors are excess of citrate, which may cause a fall of ionized serum calcium, arise of serum potassium, a fall in blood PH, and cold blood, the effect of these factors may be aggravated by impariant of liver function, measures to prevent cariac arrest include the maintenance of adequate perfusion, careful warming of the blood to body temperature (with strict precautions to prevent hemolysis from overheating) and the administration of calcium gluconate (eig 10 ml of 10% calcium gluconate solution per liter of blood after the first 2 liters) when the rate of blood administration is very rapid another complication which may occure is bleeding as a result of dilution of labile coagulation factors and platelets, if the transfusion in excess of the blood volume of the patient, a significant dilution effect may be anticipated. The supplementary administration of 2 units of fresh blood or 3 to 5 units of thawed fresh frozen plasma provides sufficient replacement of deficient hemostatic factors in patient without preexisting coagulation defect.

## Delayed transfusion reaction

### Transmission of disease

There are main disease may be transmitted by blood transfusion namely. Post transfusion hepatitis-is the most important- the high incidence of hepatitis in patients transfused with blood containing hepatitis B surface antigen (HBs Ag) a marker of the presence of hepatitis B virus and identification the identification of HBs Ag in the serum of about 60% of patient with post- transfusion hepatitis. The infections caused by hepatitis B virus hepatitis A virus, and to lesser extent the cytomegalovirus, are the major offenders the transmission of AiDs by blood products malaria. Apaient who receives blood from malaria donor may develop an attack of malaria syphilis, with careful donor selection and the serological testing of all blood the risk of transmission is remote, especially as the spirochaete at 4<sup>o</sup> C. other disease like influenza, brucellosis, norbilli varicella. Fractionation of blood into components can serve to some extent to reduce the risk of infection. A development of a hepatitis vaccine. For a massive hemorrhage the surgeons are now using devices to remove debris from blood leaking into the body cavities during trauma and surgery and rein fusing this blood into patients circulation blood testing with the exception of the test for hepatitis B surface antigen (HBs Ag) most screening tests detect antibody against the infections agent such indirect tests cannot detect infections during the period between the time of infection and the appearance of the antibody this " window period " can last for weeks or months.

## Delayed hemolytic reaction

In delayed hemolytic reaction development of irregular is antibodies occur 4-14 days after transfusion of compatible blood. In such cases the patient usually has been immunized by a previous pregnancy or transfusion, and the concentration of antibody was below the level of serologic detection of the time of transfusion. A rare complication of transfusion therapy is post transfusion puerperal in such cases it appears that is antibodies to the transfused platelets not only decrease their

survival time but also load to destruction of the patients autologous platelet (Rennar *et al.*, 1990).

## Correct temperature for storage of blood products.

Product	Storage temperature °C	Shelf – life
Whole blood,	1-6	In ACD 3 weeks
Red cells		In ACD 4 weeks
Platelets	20-24	In ACD A 1 5 weeks
		3-5 days (depending on gas – permeability of container )
Plasma	30 or	
Cryoprecipitate	Lower	12 months
Albumin	7 or lower	3 years ( variable )
	2-8	10 years
Antithaemophilic factor	2-8	
	ambient	

Total No. of patient admitted to hospital during 3 months (Febreuary, March , April,1999)

1-Febreuary 1098 142

2-March 942 120

3-April 111 130

TOTAL 3151 + 400 = 3551

## Aim of the study

It has been notied that blood transfusion as a therapy is a companied by a lot of complications and hazards our study which performed with department of gynecology and obstetric in maternity and paediatric hospital in Al-Najaf was carried out to evaluate out indications and complications that arise from blood transfusion and try to identify and then to avoid factors that causing the significantly high complication rate. Cost of blood per /1 pint, Cost of blood collection 1.69\$, Cost of blood transfusion 0.4\$, By U.S dollar.

## Patients and methods

100 cases of blood transfusion were inel.Uded in the study of aperiod of 3 methods from beg febreuary to April1999. Every patient submitted for blood transfusions in the department in gynecology obstetric in the hospital was included in the study. The following information were obtained from each patient are. 1-Date, 2-Name, 3-Address, 4-Blood group & Rh, 5-Hb% before & after transfusion independent of patient file for pregnant patients.6-GPA, Gestational Age.

## Transfusion before, after or during delivery

Or operation, Fetal condition, Previous blood transfusion. Family history, Indication for transfusion. The aim of Blood transfusion. After this information, full general examination of a patient is performed independent from patient medical record no interference were made regarding no the indication, timing, method of transfusion, only observation and recording. Blood sample taken from the patient for cross matching with donor blood for transfusion blood blood of the same ABO and Rh group is selected. The red blood cells from each donor unit are tested against serum (major cross mach) then warming by the patient herself until become similar to body temperature patient during transfusion was monitored about flashing-itehly-dysprea when reaction develop we treated at once. The patient were followed up after discharge for two weeks for development of late complication about so patient were missed statistical method used in study are X2 value.

## RESULT

100 units was transfused for whole blood in 100 cases.

**Table No. 1 Show the signes and symptoms of transfusion reaction observed in our series in 38 reactions fever and chill . The most common followed by fever and the least collops, oliguria**

S&S	No . of reaction	%
Fever	10	26.3%
Chills	10	26.3%
Fever + chills	14	37%
Collaps + oligures + anurea	4	3%
Buffy face	5	3%
Overload	1	3%
Total	38	

**Table No. 2 Show the reaction is equal in women with previous history of pregnancy and other without pregnancy during the blood transfusion**

	Reaction	No reaction	Total
With previous of pregnancy	22(18.6)	8(11.4)	30
Now pregnancy	40(43.4)	30(26.6)	70
Total	62	38	100

$X^2 = 2.34$   $P > 0.05$

**Table 3. Age distribution id our series of cases illustrated in table 1 as can see there is increase frequency of reaction in 4<sup>th</sup> decade age**

Age	With reaction	No reaction	Total
20-30	20(22.8)	40(37.7)	60
30-40	10(7.6)	10(12.4)	20
40-50	8(7.6)	12(12.4)	20
Total	38	62	100

$X^2 = 1.8$   $p > 0.05$

**Table 4. Indication Blood Transfusion 31 in martnity & patient chospitalin Najaf**

Indication of blood transfusion	No . patients
Anaemia	53
Hypovolemia	3
Pre – operative preparation	14
Pregnancy + anaemia in first trimester	25
Pregnancy + anaemia in 2 <sup>nd</sup> trimester	5
Pregnancy + anaemia in 3 <sup>rd</sup> trimester	-ve

**Table 5 patient properly investigated before transfusion**

Properly investigated before Transfusion	No . investigation before transfusion
60	40

**Table 6. History of transfusion**

	Reaction	No reaction	Total
History of Previous transfusion	22(16.38)	17(22.62)	39
No previous transfusion	20(25.62)	41(35.38)	61
Total	42	58	100

$X^2 = 5.45$   $p > 0.01$   
Significant difference At  $\alpha = 0.05$

**Table 7 . Show reaction more common in blood group O+ve AB + ve respectively**

Blood group	Reaction	No reaction	Total
A+ve	10(35.7%)	18	28
O+ve	2(46.5%)	23	43
B+ve	6(28.6%)	15	21
AB+ve	1(16.7%)	5	6
A – ve	1(50%)	1	2
Total	38	62	100

$X^2 = 3.46$   $p > 0.05$

Show the reaction more common in women with previous history of transfusion. Than those without history of transfusion is significant difference. At  $\alpha = 0.05$

## DISCUSSION

The evaluation of transfusion of blood in maternity and paediatric hospital in Al-Najaf revealed that 40 units of transfusion were in appropriate transfused because of not well investigated before transfused and given only whole blood. In comparison with other study by William J. (7) anaemia can be treated with red blood cells or with drugs only injection or tablets (a better method of treatment which give a better result and less complication, cheaper). In haemodilution in surgery can be treated by R.B.C preferable to whole blood. In our study most type of reaction is fever and chills about 37% of the cases of total reaction then fever alone 26%, chills 26% oliguria 3%. Volume overload 3% (history taken from the patient no previous disease) In comparison with other study Allah J. (7). That febrile reaction mainly non hemolytic made majority about 30% of adverse reaction but here the percentage more high due to higher rate of reaction were excluded by negative direct comb's test. This consistent with our study that febrile reaction mainly non hemolytic made the majority of adverse reaction, but here the percentage found to be higher this is due to the higher rate of reaction although a reaction due to leukocyte antigens has a good prognosis, it may be confused with hemolytic transfusion reaction because gravid women reaction may occur with the first or second transfusion. Case for more study.

Female her age 28 years –p3. A period of infertility between each pregnancy about 2-3 years without use of contraception in January 1999, had amenorrhea for 2 months. She took one ampule progesterone I.M then after 2 weeks developed menorrhagia done for her dilatation and curettage then regular menses but since that time developed anemia she received till now 8 pints of blood but still Hb 7. We did for her all investigations were only bone marrow aspiration she refused it. GSE-Enterobius vermicularis ova. Hb 7.8 g/dl, WBC 2.600 c/m, ESR 60.0 mm. Differential count, N= 60%, L=35%, M=2%, B=0.5%, E=1%, Hb% electrophoresis, HbF –ve, HbS –ve, HbA1 98%, HbA2 2%, Coombs test –ve.

This based on valid (study (2)) showing that anemia does not constitute a contributing factor to mortality, that, and that arise Hb level does not produce beneficial effect on cardio respiratory symptoms or a psychomotor function when the initial Hb level 8 g/dl on the other hand the formulation of criteria may be fraught with serious limitations instance we include the criteria external bleeding confirmed by physician because bleeding is mostly unpredictable event, and early transfusion may be crucial to the immediate progress of the patient clearly criteria may allow this criteria may allow some unnecessary transfusions.

In our series the patient with frequent blood transfusion more liable to reaction because of previous sensitization. In comparison with Bernard M. (Bernard *et al.*, ?). In repeated transfusion have an unusual R. B. C antigen profile, they will eventually develop antibodies against most erythrocytes in general population. In our series all pregnant women have more reaction in blood transfusion because of sensitization. In comparison with other study by (William *et al.*, 1977). In gravid or parous women reaction may occur with first and second transfusion but in non pregnant with 7th transfusion.

Ab against HLA antigens on leucocytes don't occur naturally but immune antibodies are frequently found in sera of multiparous female or following blood transfusion in our series more reactions occur in blood group O+. As compared with other (Chanavin *et al.*, 1976). 1-Chanavin group O donor blood may contain an immune anti A and / or anti B and this can cause a haemolytic reaction when given to an A & B or AB patient, but more reactions occur in blood group A because subgroups A1, A2 are present in blood group A. Certain antibodies may also result from the injection of substances which are chemically closely related to a red cell antigen for example: some biological products such as tetanus toxoid, contain substances closely related to A & B substances. The sera of persons who have received injections of such biological products may contain immune anti A or anti B antibodies or may be due to bacterial contamination, over heating or in a preventable freezing and thawing of blood or addition of drugs to blood bottle diuretics such as ethacrynic acid. One of the patients in our study died she received about 6 pints of blood because of one of the patients in our study died she received about 6 pints of blood because of menorrhagia – she admitted for preparation for total abdominal hysterectomy (T.A.H) in 2-99.

- Her age was 45 years.
- Admitted for 1 week she received 3 pints during this admission & 3 pints before for 1 week from the time of admission she developed fever, chills, bloody diarrhoea, haematemesis to Sadam hospital she died after 3 days diagnosed as a case of renal failure and heart failure developed from blood transfusion reaction.
- Another patient G1 P0 A0, 8 M.P. Admitted for correction of anemia she received 3 pints of blood before few days. while she started transfused few drops from the 4th pint she developed high fever and chills, haemoptysis in the 2nd day done for her C/S. Because of accidental haemorrhage during operation intraperitoneal bile stain secretion aspirated the patient still the same condition of fever and chills with dyspnea referring to Sadam hospital after receiving heparin she got well we cultured her pint of blood the result was *Klebsella* treated by parenteral antibiotic and heparin. So the patient is a life.

## Conclusion

We find a higher rate of inappropriateness for the use of blood, and a high rate of transfusion reactions. Which need more instruction to medical student and junior doctor regarding the use of blood and the blood products.

## Recommendation

Since blood transfusion is not a therapy free from side effects and complications. There are a lot of complications associated with it. The procedure of blood donation and so we recommended that blood transfusion only indicated for those patients in real need so mild to moderate anaemia could be corrected by: 1-education about nutrition. 2-correction could be by supplementary. Iron either oral or parenteral blood transfusion can be reserved for severe anaemia in emergency cases such as acute blood loss.

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