Journal of Bangladesh College of Physicians and Surgeons
Vol. 34, No. 1, January 2016

Evaluation of Blood Transfusion Practices in Obstetrics and Gynecology in a Tertiary Hospital in Bangladesh

F CHOWDHURY[a], S AKHTER[b], A ISLAM[c], J RAYEN[d], N BEGUM[e], F BEGUM[f]

Summary:

Background: Blood transfusion is a life saving intervention in some obstetric and gynecological cases but is associated with risk of transfusion reaction and transmission of infection . Appropriate use of blood and blood products is of utmost importance for the safety of the patients. During the evaluation of an ongoing study on PPH,it appears that rate of blood transfusion is unexpectedly high in this centre, which raised the inquisitiveness in evaluating the rate and rationality of blood transfusion in present practice.

Objective : To determine the incidence of blood transfusion in admitted and operated cases and is also to evaluate the indication of transfusion among the study patients.

Subject and Method: It was an observational descriptive study, conducted from 1st April 2012 to 30th June 2012 in department of obstetrics and gynecology of Ad-din Women Medical College Hospital , Dhaka . Total 256 cases were included for the study, who received blood and /or blood products during the study period.

Results: Transfusion rate in total admitted patients was 9.23% . Most common indication for blood transfusion in obstetric patients was mild preoperative anaemia with or without excessive bleeding during cesarean section (63.92%) and second common cause was antenatal anaemia (24.05%). In gynecological cases abortion (45.91%) was the commonest indication for blood transfusion and next common conditions were total abdominal hysterectomy (20.40%),vaginal hysterectomy (7.14%), ectopic pregnancy and post coital tear (6.12%) and(6.12%).

Conclusion: In this study it was observed that, blood transfusion was not appropriate in all cases, specially in cases where single unit blood was transfused . So creation of awareness among the junior doctors, obstetricians, nurses – midwives is essential by developing regular education and training programme .

Key wards: Blood transfusion, Obstetrics and Gynaecology.

(J Banagladesh Coll Phys Surg 2016; 34: 9-14)

Introduction:

Safe blood products, used correctly, can be life saving [1] in cases with major and life threatening obstetric hemorrhages, which occurs in 3-5%[2] and .1%[3] of deliveries.

Blood transfusion is recognized as one of the eighth essential components of comprehensive emergency obstetric care (CEOC), which has been shown to reduce rates of maternal mortality[4] .

Studies show that there is inappropriate transfusion in 15-45%, either transfusion was done in, not indicated cases or too late or too little done in indicated cases [5] .

The appropriate use of blood and blood products means the transfusion of safe blood product only to treat a condition leading to significant morbidity and mortality that can not be prevented or managed effectively by other means[6] . Medical alternatives to transfusion include iron supplementation and erythropoisis-stimulating agent(ESA)[7].

Accurate evaluation of blood loss is important to determine whether transfusion should be performed , but it is difficult in obstetric hemorrhage [8,9,10]. Transfusions decisions are clinical judgments that should be based on the overall clinical assessment of

a. Dr. Ferdousi Chowdhury, Associate Professor, Department of Obstetrics and Gynecology, Addin Women Medical College Hospital Dhaka.

b. Prof. Sayeba Akhter, Professor of Obstetrics and Gynecology.

c. Dr. Aminul Islam, Associate Professor of Department of Medicine, Community Based Medical College Hospital, Mymensingh.

d. Dr. Junnu Rayen, Assistant Professor, Department of Obstetrics and Gynecology, Addin Women Medical College Hospital, Dhaka.

e. Dr. Nayeema Begum, Assistant Professor, Department of Obstetrics and Gynecology, Addin Women Medical College Hospital, Dhaka.

f. Dr. Farjana Begum, Assistat Professor, Department of Obstetrics and Gynecology, Community Based Medical College Hospital, Dhaka.

Address of Correspondence: Dr. Ferdousi Chowdhury, Associate Professor, Department of Obstetrics and Gynecology, Addin Women Medical College Hospital Dhaka. Cell no. 01758870537, Ph. No: 8331322(Res). Email: ferdousi sbmc @yahoo.com

Received: 18 July, 2013 **Accepted:** 10 December, 2015

the individual patient. It should not be based on laboratory parameters alone[11].

Prior to the administration of blood or blood components, the indications, risks and benefits , of a blood transfusion and possible alternatives must be discussed with the patient and documented in medical record[12].

Purpose of the study: The purpose of the study was to identify difficulties and also to find out the rate of unnecessary transfusion in total transfusion management in this hospital, and then proposal for setting up a Hospital Transfusion Committee for proper transfusion management.

Subject and Methods: It was an observational descriptive study conducted in Obstetrics and Gynecology Department of Ad-din Women Medical College Hospital, Dhaka, a tertiary care center for obstetrics and gynae patients. A big population including referred complicated cases are served here coming from whole country . Duration of study was from 1st April 2012 to 30th June 2012 .All patients, received blood transfusion in obstetrics and gynecology department were included for the study. Total 2849 patients got admitted during the study period in

Obstetrics and Gynecology Department. Among them 2417 were obstetrics and 432 were gynecological cases. 162 obstetrics and 101 gynae patients received blood or blood component transfusion . In 162 obstetric patients, who received transfusion, 158 cases were included for study and among 101 gynecological patients 98 cases were included and total 7 cases were excluded from is in group due to incomplete data.

Patients were evaluated according to demographic characteristics, indication of blood transfusion, units of blood transfused ,pre – transfusion and post transfusion Hb level .Data was collected in a preformed data sheet and result were calculated by scientific calculator.

It was an observational type of study ,and due consent was taken from Ethical committee of the Hospital

Results: Transfusion rate in total admitted cases was 9.23%. In obstetric patients the rate was 6.02% , Patients with cesarean section the rate was 8.68%. Among gynecological cases 23.37% received transfusion and among them 14.49% cases , it was transfused during elective surgery.

Commonest age group among the study patients in obstetrics was between 20 to 30 years of age group .Teen age pregnancy constituted less than 10% of the cases. Among the obstetric cases, who received blood transfusion, 75(47.47%) were booked and 83(52.53%) were unbooked. Multiparous patients constituted 68.35% of the total obstetric patients , received transfusion.

Obstetric and medical condition for blood transfusion were mild preoperative anaemia with or without excessive hemorrhage during cesarean section 63.92% (101). antenatal anaemia 24.05% (38), postpartum hemorrhage 15.19%(24), pre- eclamsia /eclampsia 9.49%(15), placenta praevia 9.49(15), multiple pregnancy 6.33%(10), abruptio placenta 4.33%(7), PROM 4.33%(7), IUD 2.53%(4), vulovaginal and cervical tear 2.53%(4)and puerperal sepsis .63%(1).

110(69.62%) patients received single unit blood transfusion . Massive blood transfusion (20units) was given in one patient, who was a case of placenta increta. Her uterus was preserved during cesarean section by leaving the placenta insitu. But delayed hysterectomy was done due due to severe hemorrhage after two months. FFP(Fresh Frozen Plasma) was transfused to the patients ,who recived 6 or more unit whole blood accoding to necessity.

In a case with Thrombocytopenia , one unit Platelet and one unit fresh blood were transfused during her operation .

In obstetric cases pre-transfusion Hb level was <7gm/dl in 22(13.93%) patients .In 72(46.83%) cases Hb level was 7- 9gm/dl. Post–transfusion Hb level was 8-10gm in 56 cases , >10gm in 67 cases .

Among the gynecological patients most common indication of blood transfusion was abortion 45.91%(45), followed by TAH 20.40%(20) ,VH 7.14%(7), ruptured ectopic pregnancy 6.12%(6) ,Postcoital tear 6.12%(6), molar , pregnancy 5.10%(5), puberty menorrhagia 2.04%(2),Weirtheims hysterectomy 1.02%(1).

Table-I

Socio – Demographic characteristic of the obstetric patients(n-158)

Age (years)	N(%)
<19	13(8.33)
20-30	121(76.58)
>30	24(15.19)
Parity	50(31.65)
Primi	108(68.35)
Multi	
Booking status	75(47.47)
Booked	83(52.53)
Unbooked	
Socioeconomic status	90(56.96)
Low middle	68(43.04)
Middle	

Commonest age group among the study patients in obstetrics was between 20 to 30 years of age group .Teen age pregnancy constituted less than 10% of the cases. Among the obstetric cases, who received blood transfusion, 75(47.47%) were booked and 83(52.53%) were unbooked. Multiparous patients constituted108(68.35%) of the total obstetric patients , received transfusion. >50% cases had low middle or lower soscio-economic status

Table-II

Indication of blood transfusion in obstetric patient(n-158)

Factors	N(%)
Medical condition	
Anaemia including Thalassaemia	38(24.05)
Antenatal factors	37(23.42)
Previous cesarean section	15(9.49)
PIH/PE/ECL	15(9.49)
placenta praevia	7(4.43)
Abruptio placenta	10(6.33)
Multiple pregnancy	7(4.43)
PROM	4(2.53)
Intrautrine fetal death	
Cesarean section	101(63.92)
Postpartum factors	24(15.19%)
Postpartum hemorrhage	4(2.53)
Vulvovaginal and cervical tear	1(.63)
Puerperal sepsis	

Table is showing that 38(24.04%) patients needed blood transfusion during antenatal period due to moderate to severe anaemia.

101 cases received transfusion during their cesarean section due to mild pre-operative anaemia with or withiout excessive hemorrhage.

24(15.19%) patients were diagnosed case of Postpartum hemorrhage. Among all the obstetrics patients 37(23.24%) had previous cesarean section, 15(9.49%) had pre-eclampsia/eclampsia, 15(9.49%) had placenta praevia, 7(4.43%) had abruptio placenta.

Table-III

Pre transfusion and post transfusion Hb level in obstetric patients

Pretransfusion Hb level gm/dl	Total patients n-158(%)	Post-tansfusion Hb level gm/dl	Total patients n-158(%)
<7	22(13.93%)	8-10	56(35.44%)
7-9	74(46.83%)	>10	67(42.41%)
>9	62(39.24%)	Not done	35(22.15%)

This table is showing that 39.24% patient received transfusion even they had Hb level >9gm/dl. Among these cases transfusion might have been avoided.

Table-IV

Number of unit of blood transfused in obstetric patients

Unit of blood	Number of patient-158	Percentage
1	110	69.62
2	26	16.46
3	12	7.60
4	6	3.80
5	1	.63
6	1	.63
10	1	.63
20	1	.63

Table-V

Indication of blood transfusion in gynae patient(n-98)

Indication	Causes	N(%)
Abortion	Moderate to severe anaemia	45(45.91)
Molar pregnancy	Anaemia and operative blood loss	5(5.10)
TAH	Perioperative anaemia	20(20.40)
VH	Perioperative anaemia	7(7.14)
Ectopic Pregnancy	Moderate to severe anaemia	6(6.12)
Postcoital tear	Moderate bleeding	6(6.12)
Puberty menorrhagia	Severe anaemia	2(2.04)
Weirtheims hysterectomy	Excessive operative blood loss	1(1.02)
Others		6(6.12)

Table-VI

Pre and post transfusion Hb level in Gynecological cases

Pretransfusion Hb level gm/dl	Total patients n-98(%)	Post –transfusion Hb level gm/dl	Total patients n-98(%)
<7	19(19.39%)	8-10	42(42.86%)
7-9	23(23.47%)	>10	42(42.86%)
>9	56(57.14%)	Not done	14(14.28%)

This table is showing that 57.14% patient had >9gm/dl pre-transfusion Hb . Transfusion could be avoided among these cases.

Discussion:

In total admitted cases in obstetrics and gynecology the transfusion rate is 9.23%, which is more or less comparable to the study done in Nigeria at the Lagos University Teaching Hospital ,where the rate was found 12.1% [13] and also correlate with another study done in Khartoum teaching hospital ,where the rate was 11.4% [14]. But it is higher than the rate reported from developed countries [15].

In cases with cesarean section transfusion rate was 8.68%. It correlates with study done in Nigeria [16],where the rate was 8.9%. The current rate is relatively higer than study done in Canada [17] (5.7%) and the rate reported by Duthie etal[18](4.5%) and Rouse et al [19] (5.4%) .But the rate is much lower than the rate found in studies done in Aga Khan University [20] (15%) ,University of Nigeria Teaching Hospital [21] (25.2%) and also lower than the studies done by Ranaldi MP[22] and others 23.5% and by Oluwarotimi et al [23] 12.5%, by Adity G.et al[24](12.21%).

Commonest indication for blood transfusion was cesarean section (63.92%). It correlates with the rate 68.8% ,found in the study done in Lagos University Teaching Hospital , where the most common determinant for blood transfusion was cesarean section [13].

Anaemia was the second common cause .Among the cases of cesarean section mild preoperative anaemia with or without mild to moderate peroperative hemorrhage was the commonest indication .Majority of these cases were unbooked .Some studies found that most of the transfusion for anaemia in pregnancy were unnecessary [9,13]. Regular antenatal check up, prevention and early detection of anaemia , iron supplementation could avoid blood transfusion for anaemia.

Pretransfusion Hb level was <7 gm/dl in 22(13.93%)cases. In 62(34.24%) cases Hb level was 7 to 9gm/dl in 22(13.93%) cases .In 62(34.24%) cases Hb level was 7 to 9 gm/dl. More than 40% patient had no other symptoms than anaemia .The practice of transfusion at a Hb concentration <10gm/dl is no longer uniformly accepted [9,13].

Predelivery Hb level> 9gm/dl was found in 54% cesarean delivery cases. In these cases blood was transfused during cesarean section or immediate postpartum period due to mild to moderate peroperative hemorrhage .

110 units blood were transfused to 110(69.62%) patients.This rate is compareable to the rate 68.2% of single unit blood transfusion ,reported by Khan et al [20] , in their study in study in Aga Khan University . One unit blood may not have brought about any significant change in the hematocrit but was more than enough to cause all the complications of blood transfusion .In this circumstance one unit of crystalloid or colloid would have achieved the same effect without incurring the costs, risk and complications of blood transfusion [13].

One patient received 10 units blood due to placenta increta ,who ultimately needed cesarean hysterectomy .Only one patient needed massive blood transfusion (20units) ,which was also a case of placenta increta.

Transfusion rate is high in gynae cases (23.37%) .This high rate is due to transfusion of blood in abortion and ectopic pregnancy cases , which included more than 50% of the transfused patients in gynae.

Transfusion rate in abortion cases was 24.15% . This rate correlates with rate, found in study done by Stanely et al [25], where 22% patient required blood transfusion and another study ,in Latin America, where the rate is 18.2% [26.]

But in cases of abdominal and vaginal hysterectomy ,transfusion rate was 14.49% . It also correlates with another study done by Naser Edris [14,] where transfusion rate in cases with TAH was 14.9%. In the present study ,transfusion rate in cases with post coital tear is high (6.12%). It is unusual to give transfusion to these cases . But in our study group 4 patients came with moderate bleeding and 2 patient came in severe bleeding with shock.

Conclusion:

In this study it was observed that, blood transfusion was not appropriate in all cases, specially in cases where single unit blood was transfused . So creation of awareness among the junior doctors, obstetricians, nurses – midwives is essential by developing regular education and training programme .

References:

1. WHO Recommendations, Developing a National Policy and Guidelines on the Clinical Use of Blood : p-1.
2. M. Balki, S. Dhumni ,S.Kasodekar ,G. Seaward and J.C. Carvalho ,Blood Transfusion for primary postpartum hemorrhage : a tertiary care hospital review ,Journal of Obstetrics and Gynecology Canada, 2008; 30(11): 1002-1007.
3. J. Drife, Management of primary postpartum hemorrhage ,British Jounal of Obstetrics and Gynecology, 1997; 104(3): 275-277.
4. Julliana SD, Nawal M.N The Use Blood in Obstetrics and Gynecology in the developing World, 2011; 86(2): 156-158.
5. Dr.Pankaj Desai–Invitation Articles–Blood Transfusion in Obstetrics, ///H: /IABlood.htm
6. The Clinical Use of Blood ,Hand Book ,Blood transfusion safety. Geneva, p3.
7. Ajay K,perioperative management of Anaemia : Limits of Blood Transfusin and alternatives to it , Cleveland clinic Journal of Medicine, 2009; 76: 112-118.
8. P. Bose , F.Regan ,and S. Paterson –Brown, Improving the accuracy of estimated blood loss at obstetric hemorrhage using clinical reconstructions, British Journal of Obstetrics and Gynecology, 2006; 113(8): 919-924.
9. G.A. Dildy ,A.R. Paine ,N.C. George ,and C.Velasco , Estimating blood loss: can teaching significantly improve visual estimation ? J of obstetrics and Gynecology, 2004; 104(3): 606.
10. S. J. Duthie ,D. Ven .G.L.K. Yung, D.Z.Guang ,S.Y.W. Chan, H.K.Ma. Discrepancy between laboratory determination and visual estimation of blood loss during normal delivery, European Journal of Obstetrics Gynecology and reproductive Biology ,vol.38,no. 2, pp 1991; 38(2): 119-124.
11. Vinita B, Robertson D, Shon D, Timothy L, Lena N, Paul P, Andrew R, Jeffrey R, Adult Blood Transfusion Clinical Guidelines, University of Michigan Hospitals and Health centers
12. Criteria for transfusion, Universty of North Carolina hospital, Chapel Hill, NC.
13. R.I. Anuriu C.O. Orkwe, O. Abudu and A.S. Akanmu. Use and misuse of blood in Obstetrics in Lagos, Nigeria, WAJM 2003; 22: 124-127.
14. Naser Edriss, A. Karim, Blood Transfussion in obstetrics and gynaecology in Khartoum teaching hospital (April 2000-October 2000), Electronic thesis and dissertation.

15. Alec J Ekeroma, Andrew A, Gordon M, Blood Transfusion in Obstetrics and Gynaecology, RCOG 1997 Br. J Obstet Gynaaecology104, 278-287.

16. Faponely A.F., Makinde O.N. Cesarean section, Intraoperative blood loss and its \restitution, East Africa Medical Journal 2007: 84; 31-34

17. Aubrey B.K. Newberry S, Kelly L, Weaver B, Wilson S, Maternal outcome of cesarean section: do generalists patiets have different outcomes than specialists patients? Can Fan physician 2007, 53: 213-214

18. Duthie S, Ghosh A, Ng A, Hopc, Intraoperative blood loss during elective lower segment Cesarean section, B J Obstet Gynaecology 1992, 99; 364-367.

19. Rouse D J, Macpharson C, Landom M, Varvar M W, Levono K J, Mwad A H, Spong C Y, Cavitis S N, Meis P J, Wapner R J, Sorokin and others: Blood Transfusion in Cesaren delivery, B J of Anesthesia, 1998, 80:195-198.

20. Khan F A, Khan M, Ali A, Chohan U, Estimation of blood loss during cesarean section: An Audit, J of Pakistan Medical Association 2006, 56;572-575

21. Ozumba B C, Ezegwui H U, blood transfusion and cesarean section in developing country, J obstet gynaecol 2006, 26;746-748

22. Rainaldi MP, Tazzari PL, Scagiliarini G, Borghi B, Conte R: Blood salvage during cesarean section: Br, J Anaesth 1998. Feb:80(2): 195-198

23. Oluwarotimi I Akinola, Adetokumbo O Fabamwo, Adetokumbo O Tayo, Kabiru A Rabiu, Yssaf A O, Chioma A O, BMC Pregnancy and Childbirth 2010, 10:37

24. Auditi G, Jasvindar K. K, Ainharan R, Rasuhi B, Neelam A, Descriptive study of blood

Transfusion practices in women undergoing cesarean delivery, J of obstet & gynaecol Research, 2011.

25. Stanley K. Henshaw, Issac A, Susheela S, Akinrinola B, Bonifae O A, Rubina H, International family planning perspectives, 2008; 34(1): 15-16.

26. Judith A Forthey, The Use of Hospital Resources to Treat Incomplete Abortion: Example from Latin America, 1981; 96(6): 574-579.