

Original Research Article

Willingness to Donate Umbilical Cord Blood by Pregnant Women in Makurdi, North-Central Nigeria

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ABSTRACT

Background: Umbilical Cord Blood (UCB) is a product that is usually discarded after delivery. This “waste product” can be harvested and used as a substitute for adult blood transfusion and as a source of stem cells for Haemopoietic stem cell transplantation.

Objectives: We sought to determine the willingness of pregnant women in Makurdi to donate their UCB after delivery.

Methods: Cross sections of women who attend antenatal clinic at the Benue State University Teaching Hospital were used for this study. A total of 250 structured questionnaires were distributed, out of which 204 were found fit for analysis. Information on socio-demography, willingness to donate UCB and factors that affect willingness were extracted. Data was collated and analyzed with Statistical Package for Social Science version 19.

Results: Data on socio-demography revealed that the respondents were aged 19 to 44 years, with a mean age of 29.1 ± 5.1 years. Tiv tribe made up the largest number (72.5%). Majority (44.1%) was Civil servants, 91.2% were Christians, 99.0% were married and 74.6% had tertiary education. Thirty-eight percent (38.2%) were having their first pregnancy while the rest were either having their 2nd, 3rd, 4th or more pregnancies. On willingness to donate umbilical cord blood, 83 (40.8%) of the women were willing to donate their placenta after delivery. Eight-four percent of these women said they will be doing so in order for the hospital to help them discard their placenta. The reasons for not donating placenta by the unwilling women included, preference to bury placenta at home (56.9%), protection of child’s destiny (20%), obedience to their husband’s wish (9.6%), cultural reasons (8.5%) and religious reasons (5.0%). Willingness to donate cord blood was noted to be significantly affected by the number of pregnancies. Women with first pregnancy were less willing to donate their placentas compared to women with higher number of pregnancies. ($p=0.004$).

Conclusion: The willingness to donate placenta after delivery by women in Makurdi is fair. Preference to bury placenta at home was the major impediment to donation of placenta by pregnant women in Makurdi. Public enlightenment on the value of UCB is recommended to reverse this trend.

Key words: Willingness, Umbilical Cord blood, Pregnant women, Makurdi

INTRODUCTION

Umbilical cord blood is the blood that remains in the umbilical cord and placenta after the cord has been separated from the fetus after delivery. It is a source of the rare but precious primitive hematopoietic stem cells (HSC) and progenitor cells that can reconstitute the hematopoietic system in patients with malignant and nonmalignant disorders.^[1] It can easily be collected, cryopreserved and stored in cord blood banks for later use.^[2] UCB is a readily available and is used with increasing frequency as an alternative to bone marrow or peripheral stem cells for transplantation in the treatment of malignant and nonmalignant conditions in children and adults.^[3] The first cord blood transplantation was performed in 1988 in a patient who was affected by Fanconi's anemia.^[4] An analysis of the International cord blood transplant registry shows that between 1988 and 1994, 50 patients aged 1.3 to 47.8 years with malignant and non-malignant disorders received allogeneic umbilical cord blood for hematopoietic rescue after myeloablative therapy.^[5] Currently more than 4000 cord blood transplantations have been performed worldwide.^[6] UCB has several advantages, including prompt availability, decreased risk of transmitting viral infections and graft-versus-host disease (GVHD) in both human leukocyte antigen (HLA)-matched and HLA-mismatched stem cell transplants, and ease of collection with little risk to the mother or newborn.^[3] Voluntary donation by women has been identified as the basis for the success of unrelated UCB transplantation programmes.^[7]

METHODS

This descriptive study was conducted at the antenatal clinic of the Benue State University Teaching Hospital, Makurdi. The purpose of the study was explained to pregnant women at the waiting area of the

clinic. A total of 250 questionnaires were distributed from the month of April to June 2013. The questionnaire contained questions bordering on demography, willingness to donate cord blood and impeding factors to cord blood donation. Two hundred and ten questionnaires were returned and 204 were found fit for analysis. Data were inputted into Microsoft excel software and analyzed by the statistical package for social sciences version 19. Results were presented in percentages. Association between willingness to donate cord blood and socio-demographic parameters were tested using chi-square test. P value < 0.05 was considered significant.

RESULTS

Socio-demographic data revealed that the respondents were aged from 19 to 44 years with a mean age of 29.1 ± 5.1 years. Tiv tribe made up the largest number (72.5%), followed by Idoma (12.7%). Majority (44.1%) were civil servants, 33.4% were students while the rest were traders and farmers. Ninety-nine percent were married, 91.2% were Christians, 74.6% had tertiary education while 3.9% had no formal education. Thirty-eight percent were having their first pregnancy while the rest were either having their 2nd, 3rd, 4th or more pregnancies. Table 1.

On willingness to donate cord blood, 40.8% of the women indicated their willingness to donate placenta after delivery. The reasons for not donating placenta by those not willing to donate included, preference to bury placenta at home (56.9%), protection of child's destiny (20%), obedience to their husband's wish (9.6%), cultural reasons (8.5%) and religious reasons (5.0%). Eight-four percent of those willing to donate their placenta said they will be doing so in order for the hospital to help them discard it. Table 2.

Table 1: Socio-demographic characteristics of the respondents.

Parameter	Category	Number	Percent
Age	19-24	37	18.2
	25-30	109	53.4
	31-36	36	17.6
	37-44	22	10.8
Tribe	Tiv	148	72.5
	Idoma	26	12.7
	Ibo	14	6.9
	Igede/Igala	16	7.9
Occupation	Civil servants	90	44.1
	Students	68	33.4
	Traders	18	8.8
	Farmers	28	13.7
Religion	Christians	186	91.2
	Muslims	8	3.9
	Traditional	10	4.9
Marital Status	Married	202	99.0
Educational level	Single	2	1.0
	None	8	3.9
	Primary	8	3.9
	Secondary	36	17.6
Number of Pregnancies	Tertiary	152	74.6
	One	78	38.2
	Two	40	19.6
	Three	46	22.6
	>Three	40	19.6

Among the socio-demographic characteristics, only the number of pregnancies was noted to significantly affect the willingness to donate cord blood. Women with first pregnancy were less willing to donate their placentas compared to women with higher number of pregnancies. (p=0.004). Table 3.

Table 2: Factors responsible for unwillingness to donate placenta by pregnant women in Makurdi.

Factor	Number	Percentage
Preference to bury placenta at home	116	56.9
Protection of child's destiny	41	20.0
Obedience to their husband's wish	20	9.6
Cultural reasons	17	8.5
Religious reasons	10	5.0
Total	204	100.0

Table 3: Distribution of respondents according to their willingness to donate cord blood and the number of pregnancies

Willingness	1 st Preg	2 nd Preg	3 rd Preg	>3 Preg	Total
Yes	28	28	24	32	112
No	54	12	16	10	92
Total	82	908	90	42	204

Preg= pregnancy, df=3, x2=13.35, p=0.004

DISCUSSION

Scarcity of blood and blood products is among the numerous challenges confronting the Nigerian Health sector. Perhaps, the solution to the current menace of shortage of blood products is to explore the option of cord blood and cord blood

products, a practice that is increasingly being explored and embraced among many developed nations of the world. If Nigeria must overcome the current challenge of shortage of blood and blood products, then it is expedient that we strongly consider and commence utilization of cord blood and its products. Human umbilical cord blood has proven to be a feasible alternative source of hematopoietic stem cells for pediatric and some adult patients with major haematologic and non-haematologic disorders. This observation has promoted the establishment of cord blood banks for use in unrelated transplants worldwide.^[8] The success of cord blood banking depends heavily on the willingness of pregnant women to donate cord blood after delivery.

Our study showed that the willingness to donate cord blood by pregnant women in Makurdi was 40.8%. In a similar study in Benin-City, Nigeria, researchers found the willingness to be as high as 70.2%.^[9] The better predisposition of women in Benin-city to donate cord blood may be attributed to the University of Benin Teaching Hospital's policy that women routinely leave their placenta behind to be discarded by the hospital and also the differences in the ethnicity of the two regions. In our study centre, women are left to decide what to do with their placenta. In a study in Switzerland, 93% expressed a willingness to donate the UCB for their own child.^[10] This was after the benefits of UCB were explained to them. The lower level of willingness expressed by our study population may be as a result of lack of understanding concerning the usefulness of UCB as this was not explained to them prior to the administration of the questionnaires. In a Canadian study,^[11] 100% of the participants in the spirit of altruism expressed willingness to donate UCB to a public bank, given that UCB would otherwise amount to waste. In Makurdi, the

willingness to donate UCB, though fair is less than what was obtained in developed countries.

Highest percentage (56.9%) of respondents preferred to bury their placenta at home. The practice of burying human parts as a way of disposing them is common in Nigeria. This practice is viewed as a respect for the dead. There exist a lot of beliefs about the placenta in different parts of the world. In this study area, it is generally believed that the future of a child is somewhat tied to his/her placenta. As a result women tend to view the placenta as very important and would excise caution with the way it is disposed. They feel that it will be most appropriate if the disposal of placenta is done by themselves or family members and not by any other persons as a reverence for its symbolism of life, spirit and individuality. This practice is not peculiar to Tiv tribe. In some Ibo speaking parts of Nigeria and in Ghana, the placenta is given a full burial rite. In Mali, it is thought that the placenta can affect the baby's mood or even make the baby ill.^[12] The placenta is therefore washed, dried, placed in a basket and buried by the father. In some parts, it is believed that the fertility of the woman is connected with the way the placenta was discarded.

This study also revealed that women with their first pregnancy were significantly less willing to donate their placenta than women with higher numbers of pregnancies. This can be attributed to the inexperience of the first timers, as they do not really know much about the placenta and would like to hold on to it until they discover that it is of no use to them.

CONCLUSION

The willingness to donate placenta by pregnant women in Makurdi is fair. The major militating factor to this is the desire to bury placenta at home. There is need to

develop comprehensive public outreach and education programs on the use of cord blood. Traditional and religious leaders should also be integrated in the programs to improve the willingness to donate placenta after delivery.

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APPENDIX

Questionnaire

A research is being undertaken on the use of Cord blood as a source of stem cells for transplantation. Consequently the researchers are targeting pregnant women and will grateful if you can spend a few minutes filling in this questionnaire. Please complete it honestly and anonymously.

Section A

- Age.....Tribe.....
- Occupation.....a) Civil servant b) Trader c) Farmer d) Student e) unemployed f) Others please specify
- Religion.....a) Christianity b) Muslim c) Traditional d) None e) others please specify
- Educational level...a) None b) Primary c) Secondary d) Tertiary
- Number of pregnancy.....a) 1 b) 2 c) 3 d) 4 and above
- Marital status.....a) Married b) Single c) Divorced d) Separated

Section B

1. Is the placenta useful to you after delivery?.....a) yes b) no c) I don't know
2. Is the placenta useful to the hospital after delivery?.....a) yes b) no c) I don't know
3. Will you like to leave your placenta at the hospital after delivery a) Yes b) No
4. If your answer to question 3 is “yes” what is your reason?
a). for the hospital to discard it b). for the hospital to use it to treat others c) others please specify.....
5. If “no” why will you like to take your placentaa) to bury it at home b) to obey your husband's wish c) because of religious belief d) because of cultural reasons e) to protect my child's destiny f) others specify.....
6. If you know that the placenta will be useful to others will like to leave yours for the hospital?
a) yes b) no
7. Would you like to exchange your placenta for anything? a) yes b) no
8. If yes what would you like to exchange your placenta for?
a) money b) gift c) others specify.....

Thank you for finding time to complete this questionnaire.

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