



EFFECT OF AWARENESS PROGRAMME ON KNOWLEDGE REGARDING COLLECTION OF CORD BLOOD AND STEM CELL AMONG ANTENATAL WOMEN IN A SELECTED HOSPITAL, KOLKATA, WEST BENGAL

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ABSTRACT

Hypothesis: Mean post test knowledge score is different than mean pre test knowledge score of antenatal women regarding the collection of cord blood and stem cell at 0.05 level of significance.

Introduction: Awareness programmes are conducted mainly to raise knowledge of the people. Knowledge is power and a weapon to tackle an adverse situation and promote health in the desirable direction. This may be true in cord blood and stem cell collection where practice can be more to do better for the society.

Objectives: This study was conducted to assess the effect of awareness programme on knowledge regarding collection of cord blood and stem cell among antenatal women.

Materials and methods: Thirty five antenatal women were selected for awareness programme. It was passed through pre test and post test design with systematic random sampling technique.

Results: The result revealed that the mean post test knowledge score (13.9) was significantly higher than mean pretest knowledge score (7.54). The computed "t value" 20 ("t" = 2.032 at df = 34 at 0.05 level of significance) was statistically significant. There was significant association between the knowledge of mothers and education at 0.05 level of significance.

Conclusion: Awareness programme was effective.

KEYWORDS : Antenatal women, awareness programme, cord blood and stem cell

INTRODUCTION:

After a baby is born and the umbilical cord is cut, some blood remains in the blood vessels of the placenta and the portion of the umbilical cord that remains attached to it. After birth, the baby no longer needs this extra blood. This blood is called placental blood or umbilical cord blood. Umbilical cord blood has been found to be a rich source of life saving haematopoietic stem cells. Stem cell therapy – the emerging therapy refers to the therapy wherein a damaged tissue that cannot heal itself is repaired by the use of stem cell. Cord blood is more like a 'biological future health insurance' for the newborn baby and its future offsprings and siblings. Stem cells from cord blood are discarded everyday in all maternity hospitals as a bio-medical waste; however this precious source can give a renewed hope to many and prove to be a life saver.¹

Umbilical cord blood can be collected without risk to the mother or infant donor. Stem cell therapy in the coming decades may provide solutions to incurable ailments and severe injuries. Over 400,000 cord blood units are stored for use in more than 100 quality controlled public international cord blood banks.^{2,3,4} Currently 134 private cord blood banks world wide are known to store more than 780,000 units.⁵ There are two types of cord blood bank - public cord blood bank and private cord blood bank. At present there are 14 approved Umbilical Cord Blood (UCB) banks operating in the country. Most of these are in the private sector and 4 in public sector.

Since the first successful umbilical cord blood transplant in 1988, it has been estimated that more than 35,000 transplants have been performed in children and adults for the correction of inborn metabolism, hematopoietic malignancies and genetic disorders of the blood and immune system.^{6,7} Diseases like leukemia, metabolic disorders and immune deficiencies etc have been successfully treated with umbilical cord blood transplantation. Further stem cell breakthrough is expected to promote effective low cost treatment for diseases like diabetes, stroke, spinal cord damage etc.⁸ At present, in India there are over 30 clinical trials that use umbilical cord stem

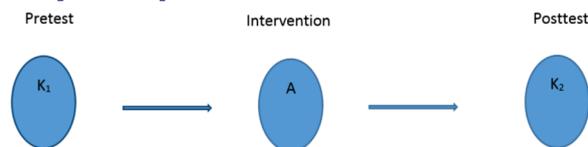
cell therapy. These trials were approved based on the positive outcomes of the previous phases. Some of the clinical trials were focused on neurological medical conditions include autism, cerebral palsy, spinal cord problems, hearing loss and hypoxic ischaemic encephalopathy, autoimmune disorder such as multiple sclerosis, diabetes, rheumatoid arthritis etc., myocardial infarction, inherited or acquired disorders such as HIV, thalassaemia, sickle cell, SCID etc. that require gene therapy and orthopaedic disorders.⁹

With approximately 72000 births daily, resulting in discarding of 72000 umbilical cords a day, the storage of stem cell rich blood derived from these umbilical cords can prove to be the best possible insurance against life threatening diseases.⁸ The studies have shown that, though most women want to do the best for their children, they lack information on the benefit of umbilical cord blood collection and banking. So encouragement during antenatal period is very important. So, it was decided to conduct a study to assess effect of awareness programme on knowledge regarding collection of cord blood and stem cell among antenatal women.

MATERIALS AND METHODS:

Type of study: This is an one group pretest posttest descriptive cross-sectional study. **Place of study:** The study has been conducted at antenatal OPD of NRS Medical College & Hospital, Kolkata, West Bengal. **Sample size:** Thirty five antenatal women attending antenatal OPD of N.R.S Medical College & Hospital. **Sampling technique:** Systematic random sampling technique was used to select antenatal women. **Variables under study:** Independent variable was awareness programme regarding collection of cord blood and stem cell. Dependent variable was knowledge among antenatal women regarding collection of cord blood and stem cell. Demographic variables were age, education, occupation, monthly family income, number of pregnancy, number of live births, place of living, type of family, knowledge from any media regarding collection of cord blood and stem cell.

The symbolic representation of the research



Keys :

K1 Knowledge test to assess the knowledge of antenatal women regarding collection of cord blood and stem cell before giving awareness programme.

K2 Knowledge test to assess the knowledge of antenatal women regarding collection of cord blood and stem cell after giving awareness program.

A Intervention means administration of awareness program to antenatal women regarding collection of cord blood and stem cell.

The sample was the antenatal women attending antenatal OPD of selected hospital. **Inclusion criteria:** Antenatal women, irrespective of gestational age of attending antenatal OPD, of the selected hospital, who are willing to participate in the study and who are available at the time of study were included in the study. **Exclusion criteria:** Antenatal women who were seriously ill and who cannot understand Bengali and/or English and women who are not available at the time of study were excluded.

Interviewing was used as **data collection technique**. The interview proforma was predesigned, pretested and semi-structured schedule for the data collection related to demographic characteristic and general information.

Statistical Analysis: After collection of data the statistical analysis has been done by applying t-test and Chi square test. T test was being used to analyse the data collected before and after intervention with awareness programme. The Chi-square test was used to analyse the collected demographic data to find out the association between demographic data with the pre-test knowledge score of the group.

RESULT:

Total thirty five antenatal women participated in the study. Age, occupation, number of live births, place of living, type of family and information from media source regarding collection of cord blood and stem cell were observed.

Table 1: Frequency and percentage distribution of samples related to age, occupation, number of live births, place of living, type of family and information from media source regarding collection of cord blood and stem cell n = 35

Sample characteristics	Frequency	Percentage
1. Age (Years)		
18-25	24	68.57
26-33	11	31.43
2. Occupation		
Housewife	28	80.00
Housemaid	4	11.43
Business	3	8.57
3. No. of live births		
0	21	60.00
1	10	28.57
> 1	4	11.43
4. Place of living		
Rural	13	37.14
Urban	22	62.86
5. Type of family		
Nuclear	21	60.00
Joint	14	40.00

6. Information from media source regarding collection of cord blood and stem cell		
No	31	88.57
Yes	4	11.43

Table 2: Distribution of Mean, Mean difference, SD, Independent t value of pre-test and post-test knowledge score of group n= 35

Group	Test	Mean	Mean difference	Median	SD	Paired t value
Antenatal women	Pre test	7.46	6.36	7	1.93	18.93*
	Post test	13.74		14	1.75	

t = 2.032, df = 34, p < 0.05*

The mean post test knowledge score was significantly higher than mean pre test knowledge score with t value 18.93 for 34 degree of freedom at the 0.05 level of significance which is suggestive of effectiveness of awareness programme.

Table 3: Association between pre-test knowledge level of antenatal women regarding collection of cord blood and stem cell and selected variables. n = 35

Variable	Chi-square Value	P value	Significance at 0.05 level
Age (years)			
18-25	0.006	0.940	Not significant
26-33			
Education			
Up to secondary HS and above	5.424*	0.020	Significant
No of pregnancy			
Primigravida	1.230	0.280	Not significant
Multigravida			
No of live births			
0	0.972	0.320	Not significant
≥ 1			
Type of family			
Nuclear	0.020	0.890	Not significant
Joint			

Table value: $\chi^2 = 3.84$, df = 1, p > 0.05, *p < 0.05

There was no significant association between pre test knowledge score and selected variables (age, number of pregnancy, number of live births and type of family). There was significant association between pre test knowledge score and education of women.

DISCUSSION:

So many studies were conducted in international, national & state level in relation to issues like collection of card blood & stem cell among antenatal women.

In this study it was depicted that awareness programme remained effective for enhancing the knowledge level among the antenatal women on collection of card blood and stem cells. Mean post test knowledge score was significantly higher (t value 18.93 for 34 df at .05 level of significance). And it was also revealed in the study that there was no such significant association between the pretest knowledge score and selected variables other than educational level of women.

In an exploratory study by Tiwari N, Turbekhar R, Girishankar N, on perception of UCB banking amongst youth in India¹⁰ in the year 2016 it was found that more than 50% of sample populations were unaware regarding UCB banking and present study result was also showing the majority (74.29%) of mother had poor knowledge level regarding this issue.

Another National level study by Pandey D, Kaur S, Kamath A¹¹ in the year 2016 titled as "Banking Umbilical Cord Blood (UCB) Stem Cells - Awareness, Attitude and Expectations of Potential Donors from One of the Largest Potential Repository (India)" was conducted where it concluded that obstetricians should play an active role in spreading information about umbilical cord stem cell banking among pregnant women and their family members. The current study failed to elicit the role of doctors.

An experimental study¹² was conducted at Tamil Nadu by Edwin Francis C, Deenajothy R, Hemamalini M on Effectiveness of Structural Teaching Programme (STP) on knowledge regarding stem cell and cord blood banking among antenatal mothers. It depicted like present study that the STP was effective motivational way for the antenatal mother to enhance their knowledge about cord blood collection and banking strategy. Their study results indirectly supported present study results.

There is a quasi-experimental study which was conducted by Hend MA and Harem FM¹³ at Riyadh, Kingdom of Saudi Arab on Effect of educational Intervention on knowledge and attitude of nursing students regarding stem cells therapy. The mean post test knowledge score was higher than the mean pre test knowledge score like present study.

Another National level study conducted at Sri Manakula Vinayagar Medical College Hospital, Puduchery (Sep 2015 to Dec 2015)¹⁴ by Poomalar GK, Jayasree M, on awareness of cord blood banking among pregnant women in semi urban area. In that study there was significant association between age and educational status of the respondents. In the present study there is also significant association between pre test knowledge score and educational level of the respondents (pregnant women).

CONCLUSION:

It could be presumed that awareness programme on collection of cord blood and stem cell was effective as it enhances the knowledge of antenatal women. The awareness programme on collection of cord blood and stem cell among antenatal women could be used as an effective teaching strategy to improve knowledge and willingness to donate umbilical cord blood. It is the right of the people to be aware of the treatment modalities and the risks versus benefits of new treatment modalities like stem cell therapy.

Implication: The finding of the present study can be applicable in various areas of nursing education like nursing practice, nursing classroom session, administration and research in health.

Recommendation:

To achieve significant result similar study can be conducted on perinatal care providers especially nurses and midwives and obstetricians who should have sufficient level of education to explain and provide necessary information to pregnant women and awareness programmes need to be arranged by Govt. to increase knowledge of people. The clinicians, policy maker have to take the responsibilities to create awareness among public. Different print and electronic media can be used to get effect. Continuous education modules can be introduced for updating the knowledge of the caregivers. These upcoming technologies need to be a part of the curriculum of the medical graduates.

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