

A Study to Evaluate the Effectiveness of Informational Pamphlet Regarding Umbilical Cord Blood Banking on Knowledge among Antenatal Mothers Visiting PHC/CHC in selected Villages at Gurugram

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Abstract: Cord blood is the blood from the baby that is left in the umbilical cord and placenta after the birth and it contains special cells called hematopoietic stem cells that can be used to treat various types of diseases. Over 400,000 cord blood units are now stored for use in more than 100 quality controlled public international cord blood banks. Stored cord blood samples have been used for transplants in both children and adults having malignant or non-malignant diseases. Cord blood stem cells are used to treat 80 + life threatening disease. The informational pamphlet will help the antenatal mothers gain complete unbiased information, which will empower them to make their own decisions leading to healthy whole lives. The present study was aimed to assess the effectiveness of informational pamphlet regarding umbilical cord blood banking on knowledge among antenatal mothers visiting PHC/CHC in selected villages at Gurugram. In this research quantitative approach with pre-experimental one group pre and post-test design was used. The sample consisted of 40 antenatal mothers and was selected by using purposive sampling technique. The collected data was analyzed by using descriptive and inferential statistics ('t' test). The result of the study showed that the mean post-test knowledge score and SD $12.63(70.10) \pm 1.983$ was higher than the mean pre-test knowledge score and SD $6.73(37.40) \pm 1.552$. The 't' value computed ($t = 17.198$) which is more than the table t-value at 0.001 level of significance showed a significant difference suggesting that the informational pamphlet was effective in increasing the knowledge of antenatal mothers on UCBB (umbilical cord blood banking).

Keywords: Effectiveness, informational pamphlet, antenatal mothers, UCBB

1. Introduction

The effort of science of today is the construction of technology for tomorrow. Medicine as a field, continues to be greatly revolutionized by continuous advancements in both treatment and technology. A baby can be bestowed with love, money virtually anything, but storing its cord blood is a once in lifetime opportunity in its real sense.

Cord blood (umbilical cord blood) is blood that remains in the placenta and in the attached umbilical cord after childbirth. Cord blood is collected because it contains stem cells, which can be used to treat hematopoietic and genetic disorders such as cancer. Umbilical cord blood is rich in cells that express the CD34 molecule, a surface protein that identifies cells as stem cells.

Prior to the discovery of UCB stem cells, it was standard procedure to discard the umbilical cord and placenta; now much effort is devoted to raising public awareness and to encouraging people to store or donate cord blood. The importance of these cells lies in potential clinical treatments of blood-borne diseases, as well as the possibility of restoring cells of other lineages, such as cardiac and neural cells. These possible uses have given rise to cord blood stem cell banking, both private and public, where cells can be frozen and stored for later use.[1]

The first successful **cord blood transplant (CBT)** was done in 1988 in a child with Fanconi anaemia.[2]

According to the new **BBC statistics**, 27,028 cord blood and tissue units were stored in 2018 – which is a massive jump from 2014, when 16,965 units were stored. Cord blood units also increased from 10,676 in 2014 to 15,078 in 2018. The

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increase reflects the growing number of treatments and advancements in stem cell science. For instance, in 2014, there were around 4,000 clinical trials and less than 80 approved cord blood treatments. In 2018, that number had increased to 6,500 studies and 85 approved therapies. Now, there are 7,255 clinical studies.[3]

According to **WHO** (2018) Umbilical cord blood banking is the revolutionary method that preserves stem cells from the umbilical cord, so it is like storing potential medication for the use in future if and whenever needed. It is like securing the baby with biological insurance.[4]

For creating awareness and improving knowledge on new inventions for better treatment and to prevent its complications **Health education, informational pamphlet** is a widely adopted strategy.

Hence, the present study focuses on providing **structured awareness programme** on UCBB which identify the knowledge level of antenatal mothers for UCBB by using structured knowledge questionnaire.

2. Literature Survey

The first cord blood transplantation was carried out in 1988 and since then numerous centers in different parts of the world have applied this new technique to treat patients with leukemias, aplastic anaemias, genetic disorders, other bone marrow diseases, and cancers. Approximately 500 cord blood transplantations have been performed up to the present time, and about two-thirds of the patients involved were treated successfully. Because each year hundreds of thousands of individuals are in need of haemopoietic stem cell transplantation, cord blood transplantation could have a considerable therapeutic impact. Currently, cord blood transplantation is not expected to replace but rather complement bone marrow transplantation.[5]

According to **WHO, 2018**, the transplant of the stem cell which are done annually is estimated to be more than 50,000 and it is said that transplantation is speedily increasing. More than 90% of the blood related disorders can be treated by the transplantation of the stem cell if the transplantation is carried out in the early period.

A study was conducted in selected hospitals of Chennai, on knowledge regarding umbilical cord blood banking among antenatal mothers. A study was conducted on around 60 samples of antenatal mothers. The result shows that the current knowledge level of antenatal mothers on umbilical cord blood banking portrays that 46(77%) had inadequate knowledge, 12(20%) had moderate knowledge and the antenatal mothers with adequate knowledge were found to be 2(3%). The findings indicates that antenatal mother's knowledge in regard to umbilical cord blood banking was inadequate. [6]

3. Methodology

The objective of the study was to assess the level of knowledge regarding umbilical cord blood banking among antenatal mothers before and after structured informational pamphlet. The study was conducted at PHC (Bhora Kalan), CHC (Pataudi), Gurugram, Haryana. The research approach used for the study was quantitative research design. Purposive sampling technique was used to select 40 antenatal mothers. The research design chosen for the study was Pre experimental one group pre-test post-test design. The tool for data collection comprised of 9 questions related to socio- demographic data and 18structured questionnaires to assess the knowledge of antenatal mothers about umbilical cord blood banking. Reliability of the tool was assessed by using internal consistency method. The reliability of structured knowledge questionnaire and informational pamphlet to assess knowledge regarding umbilical cord blood banking was found to be 0.8. Hence, the tool was considered reliable.

4. Result and Discussion

In the present studythe result revealed that 47.5% of antenatal mothers were having average knowledge in pre-test and 52.5% of the antenatal mothers were having poor knowledge. While, in post-test 55% antenatal mothers were having good knowledge and 45% of antenatal mothers were having average knowledge.

Table 1: Pre and Post test level of knowledge score, N=40

Level of Knowledge	Pre-Test		Post-Test	
	No. of Frequency	%	No. of Frequency	%
Good Knowledge (13-18)	0	0	22	55
Average Knowledge (7-12)	19	47.5	18	45
Poor Knowledge (0-6)	21	52.5	0	0

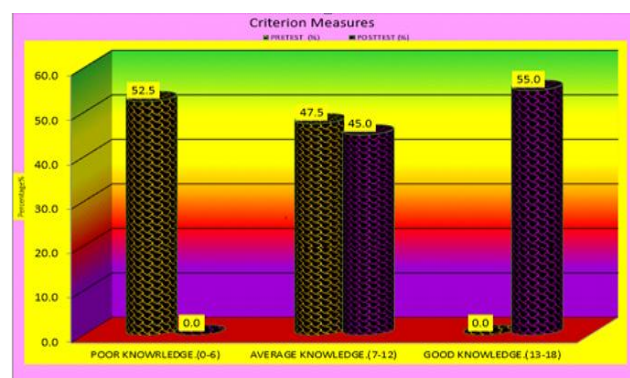


Figure 1: Percentage distribution of pre and post-test level of knowledge score of antenatal mothers.

In present study the mean post-test knowledge score and SD **12.63(70.10) ± 1.983** was higher than the mean pre-test knowledge score and SD **6.73(37.40) ± 1.552**. The calculated paired t-test value '**t = 17.198**' which was more than the table t-value at 0.001 level of significance. Thus, it was established that informational pamphlet was effective in increasing the knowledge of antenatal mothers regarding UCBB.

Table 2: Comparison of pre and post-test knowledge score on UCBB, N=40

Paired T-Test	Mean S.D.	Mean%	Range	Mean DIFF.	Paired T Test	P Value	Table Value at 0.05	Difference Difference %
Pre-Test Knowledge	6.73 1.552	37.40	4-11	5.900	17.198*sig	<0.01	2.02	5.90 32.78
Post-Test Knowledge	12.63 1.983	70.10	9-16					

Note *** Significant at 0.001 level (P < 0.001)

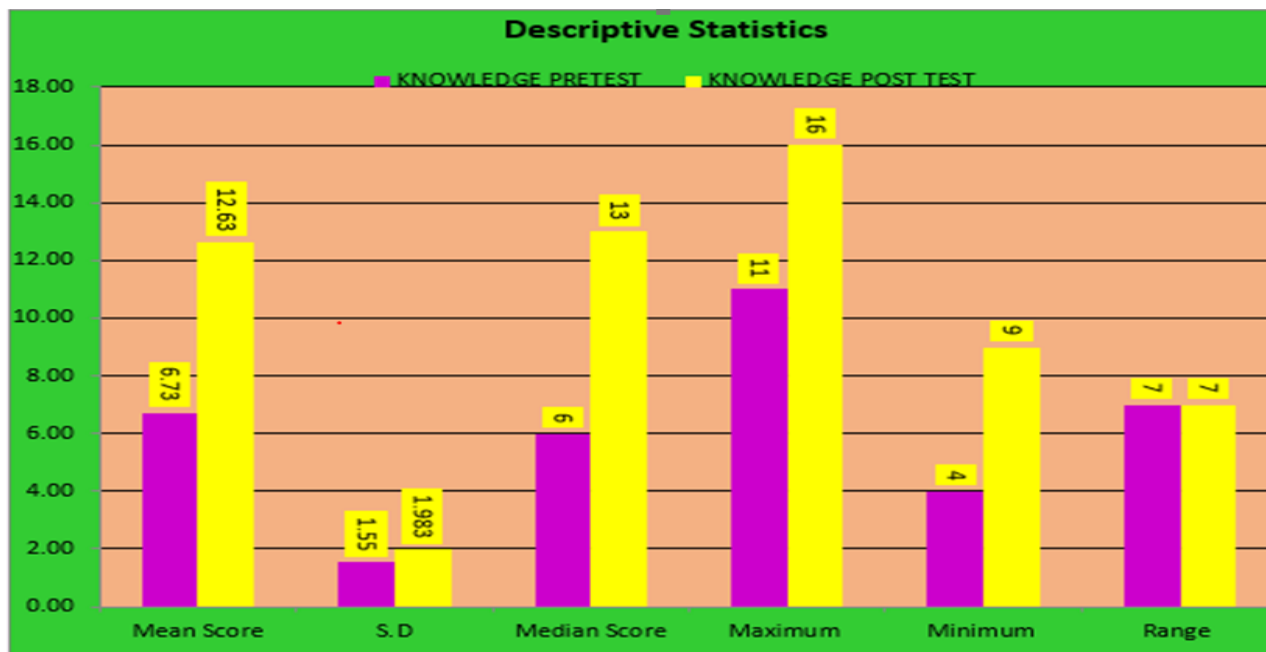


Figure 2: Percentage distribution of Pre-Test and Post-Test Knowledge Scores (N=40)

The result of the study showed that the difference between pre- and post-knowledge scores was higher and it was significant. Statistical significance was calculated by using paired “t” test. The result of antenatal mothers showed that the mean % was 37.40 in pre-test knowledge and 70.10 in post-test knowledge, range was 4-11 in pre-test knowledge and 9-16 in post-test knowledge score, mean difference for both was 5.900, paired T test for both is 17.198, P value for both was less than 0.001, table value at 0.05 for both was 2.02. Overall, **32.78%** of knowledge gain is the net benefit of this study, which indicates the effectiveness of informational pamphlet.

A study was conducted in selected hospital at Dehradun. The sample size for this study was 90 antenatal mothers. Convenient sampling technique was used for this study. Self-structured questionnaire method was used for data collection. Study finding revealed that the majority of the antenatal mothers (64.4%) had poor knowledge, (35.5%) had average knowledge and remaining (0%) had good knowledge. The study result revealed that there was statistically significant association between the level of knowledge with their demographic variables. The findings revealed that majority of the antenatal mothers had less knowledge regarding umbilical cord blood stem cell banking and there was need to improve it with the help of health education programme [7].

A similar study was conducted in selected rural areas at Tumkur district among 100 antenatal mothers with a view to develop an informational booklet. Result of the study

showed that the level of knowledge of antenatal mothers, in which majority of antenatal mothers 72 (72.0%) were having inadequate knowledge, 28 (28.0%) were found to have moderately adequate knowledge regarding uses of umbilical cord blood storage. The overall Mean and SD of subjects was 10.79 with SD 2.85, and the Mean percentage score of subjects for overall knowledge was 43.16. In relation to the attitude of the samples, 89 (89.0%) antenatal mothers were having favorable level of attitude, 11 (11%) were having moderately favorable attitude and no one were found to have unfavorable attitude regarding uses of umbilical cord blood storage [8].

5. Conclusion

The present study assessed the effectiveness of informational pamphlet regarding umbilical cord blood banking on knowledge among antenatal mothers. The result revealed that, the pre-test knowledge scores 37.36% and after giving intervention post-test knowledge score was 70.14%. The mean post-test knowledge score (12.63) was higher than the mean pre-test knowledge score (6.73). The “t” value of 17.198 for df 39 was found to be statistically significant. Informational pamphlet regarding umbilical cord blood banking was highly effective in increasing the knowledge scores of antenatal mothers visiting PHC/CHC regarding umbilical cord blood banking.

6. Future Scope

- 1) A similar study can be conducted to compare the knowledge and attitude of mothers towards cord blood banking.
- 2) A similar study can be conducted to assess the knowledge regarding cord blood banking of the staff nurses.
- 3) The study can be replicated on the larger samples with different study settings.
- 4) The study can be conducted with control group or even as Randomized control trial.

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