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ORIGINAL PAPER

Effectiveness of structured teaching programme on knowledge regarding cord blood banking among staff nurse

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ABSTRACT

Introduction*: Umbilical cord blood is rich in stem cells, which are the building blocks of blood and the immune system.* ***Objectives****: The study had been undertaken to determine the effectiveness of structured teaching programme (STP) regarding cord blood banking.* ***Methods****: A pre-experimental design (one group pre test post test design) was undertaken in Gauhati Medical College and hospital, Guwahati Neurological research centre, Good health hospital, Central nursing home, Assam. The sample size consists of 60 staff nurses and convenient sampling technique was used. The items assessed the knowledge of samples regarding cord blood banking and it consists of 30 questions.* ***Results****: Out of 60 samples, in pre-test majority 43 (72%) of respondents had Inadequate knowledge and remaining 17(28%) of the respondents had moderately adequate knowledge. After the administration of structured teaching programme, in post-test majority 38(63%) of the respondents had moderately adequate knowledge and remaining 22(37%) had adequate knowledge regarding cord blood banking the mean knowledge score in pre-test is 11.47 with standard deviation 3.52. In post-test, the mean knowledge score is 22.07 with standard deviation 2.48. The calculated value of "Z" 19.08 is higher than the tabulated value 2.33 at 0.05% of level of significant. So it indicates that the mean posttest knowledge is significantly higher than the mean pretest knowledge. Hence, STP on cord blood banking is effective.* ***Conclusion****: The STP was effective in enhancing the knowledge of health professionals regarding umbilical cord blood stem cells collection, preservation and utilization and the teaching programme had a role in improving the knowledge of the health professionals.*

Keywords*: Quasi experimental study, hospital, umbilical cord blood*

INTRODUCTION

A stem cell is a cell that can become establishes in an appropriate growing environment, has the ability to multiply, can produce cell types that continue to differentiate and renew itself or ensure the continuation of its own population and can regenerate tissue with functional damage. Stem cells, which have been used for a period of time in the treatment of leukemia and other types of cancer, have recently started to be used in medicine development, and this progress offers to hope for the treatment of diabetes, cardiovascular and neurogenerative diseases, but these applications are still unproven.[1, 2] Stem cell transplantation has traditionally been performed utilizing bone marrow or peripheral blood as a source of hematopoietic stem cells, but in many circumstances, stem cells from umbilical cord blood are preferable, given a lower risk of graft vs. host disease, greater human leukocyte antigen mismatch tolerance, lower costs, less infectious morbidity, more expeditious time to obtainment and nonexistent risk to the donor.[3]

Umbilical cord is the essential vitalizing, direct interlink between a mother and her child, which is always depicted as the blood relationship and an emotional bonding of motherhood. 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 umbilical cord remains attached to it. This is referred to as cord blood. This particular blood contains numerous hematopoietic stem cells, which differentiates into other cells and transforms into any organ and the ability to self-degenerate.[4] Nurses need to understand stem cell sources so they can enter the debate on this issue. Discussions are often intense because of the different positions held by scientific, religious, social and political sources. Nurses need to equip themselves with accurate information, using the

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international Council of Nursing Code of Ethics for Nurses[5] and their own ethical decision- making processes. They can then make decisions for themselves about the efficacy of stem cell research and then become important sources of knowledge and information to help others understand and debate the direction of this scientific break through.[6]

So, nurses need to be educated regarding the value of collecting and preserving umbilical cord blood stem cells for future use in treating illnesses such as cancer, leukemia, and blood and immune disorders.

Objectives: 1. To assess the knowledge regarding cord blood banking among staff nurses before and after administration of structured teaching programme.

2. To evaluate the effectiveness of structured teaching programme regarding cord blood banking.

3. To find out the association between knowledge score with selected demographic variables among staff nurses.

Hypothesis H_1: There will be a significant difference in the mean knowledge score of staff nurses regarding cord blood banking before and after structured teaching programme.

MATERIALS AND METHODOLOGY

A pre-experimental design (one group pre test post test design) was used to assess the effectiveness of Structured Teaching Programme on Knowledge regarding cord blood banking among the staff nurses of selected hospitals of Guwahati, Assam. The study was conducted in four hospitals of Guwahati, these are Gauhati medical college and hospital, Guwahati Neurological research centre (GNRC), Good health hospital, Central nursing home, Guwahati, Assam. The four hospitals were selected because of availability of sample, feasibility of conducting study and being permitted by the hospitals authority for the investigator. In this study, the target population was the staff nurses working on maternity ward, labour room, gynea and obstetric operation theater in selected hospitals of Guwahati, Assam, who fulfilled the inclusion criteria. The sample size consists of 60 staff nurses of selected Hospital of Guwahati, Assam. Non probability convenient sampling technique was used in selecting the sample. The convenient sampling technique was adopted because most of all the staff nurses were busy in their daily duty and permission for conducting the study was not permitted by many hospitals and also study was done as per the convenient of the researcher. A Structured questionnaire was developing to assess the level of knowledge of the staff nurses regarding cord blood banking. The technique used for this study was self report. The STP on cord blood banking was developed and an outline reference was made on the various topics that were covered in the structured teaching programme. The draft was validated by experts comprising of seven nursing experts, and three medical experts. The experts were requested to give their valuable opinion and suggestion.

The tools used for the study consisted of two (2) sections.

Section I Demographic Profile

The items assessed the demographic data of samples like age in years, educational qualification, religion, years of experience, marital status, monthly income, any special training attended.

Section II Structured Questionnaire

The items assessed the knowledge of samples regarding cord blood banking and it consists of 30 questions. Each question had only one correct answer. For every correct response a score of '1' (one) mark was given and for every incorrect response a score '0' (zero). Hence, the maximum score on knowledge was 30 and minimum score was '0'. To interpret the level of knowledge, the scores were converted into percentage and were categorized as follows:

- Inadequate knowledge <50% (Score<10 marks)
- Moderately adequate knowledge 50-75% (score 10-20marks)
- Adequate knowledge >75% (score 20-30 marks)

The reliability of the tool has been done by using Split half method for reliability. The reliability of knowledge was 0.87, so it was found to be reliable. Before starting the final data collection procedure for the present study, the investigator obtained permission from the Ethical Committee INS Trust (GNRC), Dispur, and Guwahati, Assam. The data collection period was scheduled from 4th July to 30th July 2016. A formal written permission was obtained from the respective authorities of the selected hospitals. The data analysis was consisted of descriptive and inferential statistics.

RESULTS

The data were grouped and analyzed under the following sections.

Section I Frequency and percentage distribution of staff nurses according to demographic characteristics

Out of 60 samples, majority 29(48%) of the respondents were in the age groups of 25-30 years, another 21(35%) of the respondents were above 31 years and 10(17%) of respondent were in 20-24 years. Out of 60 samples, majority 43(72%) of the respondents were GNM. Forty one (68%) of the respondents was Hindu. Majority 45(75%) of the respondents had 1-5 years of work experience. Thirty six (60%) of the respondents were married. Fifty five (92%) of the respondents had not attended any training related to cord blood banking.

Section II Assess the knowledge regarding cord blood banking among staff nurses before and after administration of structured teaching programme.

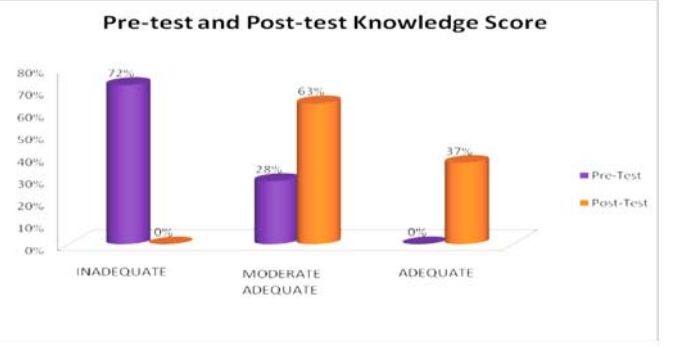

Figure 1 Distribution of staff nurses according to their level of knowledge

The data presented in figure I depicts that, out of 60 samples, in pre-test majority 43(72%) of respondents had Inadequate knowledge and remaining 17(28%) of the respondents had moderately adequate knowledge. After the administration of structured teaching programme, in post-test majority 38(63%) of the respondents had moderately adequate knowledge and remaining 22(37%) had adequate knowledge regarding cord blood banking.

Table 1 Knowledge of staff nurses regarding cord blood banking

n=60

Variable	Total score	Range of scores	Mean	SD
Pre-test Knowledge	30	5 – 15	11.47	3.52
Post-test Knowledge	30	18 -27	22.07	2.48

The data presented in Table -1 shows the comparison of values of overall knowledge of the staff nurses before and after administration of structured teaching programme with mean = 11.47, SD = 3.52, range from 5 to 15 during pre-test and mean = 22.07, SD = 2.48 and range from 18-27 during post-test.

Section III Evaluation of effectiveness of structure teaching programme on knowledge regarding cord blood banking among staff nurses

Table 2 Evaluation of effectiveness of structured teaching programme

n=60

knowledge	Mean	SD	P-Value	Calculated Z- value	Table Z -value
Pre-test	11.47	3.52	0.05	19.08	2.33
Post-test	22.07	2.48			

The **Table - 2** depicts that, the mean knowledge score in pre-test is 11.47 with standard deviation 3.52. In post-test, the mean knowledge score is 22.07 with standard deviation 2.48. The improvement is statistically tested by Z test. The calculated value of "Z" 19.08 is higher than the tabulated value 2.33 at 0.05% of level of significant. Therefore, H_1 is accepted. So it indicates that the mean posttest knowledge is significantly higher than the mean pretest knowledge. Hence, STP on cord blood banking is effective.

Section IV Association of pre-test knowledge with selected demographic variables.

Educational Qualification: The calculated value was 7.07 and table value was 3.84 at 0.05 level of significant. Since the calculated value was greater than table value there was significant association between knowledge and educational qualification.

Religion: The calculated value was 2.6 and table value was 5.99 at p = 0.05 level of significant. Since the calculated value was less than table value there was no significant association between knowledge and religion.

Years of Experience: The calculated value was 6.59 and table value was 3.84 at p = 0.05 level of significant. Since the calculated value was greater than table value there was significant association between knowledge and years of experience.

Marital Status: The calculated value was 0.01 and table value was 3.84 at p = 0.05 level of significant. Since the calculated value was less than table value there was no significant association between knowledge and marital status.

DISCUSSION

The first objective was to assess the knowledge regarding cord blood banking among the staff nurses before and after the administration of structured teaching programme.

In pre-test, 43(72%) of respondents had inadequate knowledge and remaining 17(28%) had moderately adequate knowledge regarding cord blood banking. In post-test, 22(37%) had adequate knowledge and remaining 38(63%) had moderately adequate knowledge regarding cord blood banking.

The present study was supported by the study conducted by P. Devadas[7] and the study found that 84% of health professionals had inadequate knowledge and 16% had neutral attitude. So it is necessary to update the health professionals on latest trends and developments in Knowledge and Technology so that they give correct information to the clients. Similar findings were reported by R. Taylor,[8] who found most of the nurses had good knowledge (42.86%) and neutral attitude (78.6%) with a mean knowledge and attitude score of 16.84 ± 4.59 and 53.75 ± 8.26 respectively.

The second objective was to evaluate the effectiveness of structured teaching programme regarding cord blood banking among college staff nurses.

The mean post-test knowledge score 22.07 with standard deviation 2.48 was significantly higher than mean pre-test knowledge scores 11.47 with standard deviation 3.52 among the staff nurses regarding cord blood banking. The improvement was significantly tested by "Z" test. The calculated value of "Z" was, Z= 19.08 at 0.05 level of significant.

The present study was supported by the study conducted by Kumaraswamy S, Muthulakshmi P[4] and the study results showed that post-test score (mean: 39.6±2.57) was higher than that of pre-test score (mean: 13.23±3.88) they concluded that the STP was effective in enhancing the knowledge of health professionals regarding umbilical cord blood stem cells collection, preservation and utilization and the teaching programme had a role in improving the knowledge of the health care personnel. Similar study was conducted by Ujala Joshi, Gopal Singh Charan, Lalita Kumari[9] and the results revealed that pre test knowledge level of nurses (45%) had average knowledge, (26.7%) had good knowledge, (20%) had below average and only (8.3%) had excellent knowledge. In posttest knowledge level of nurses (65%) had excellent knowledge, (28.3%) had good knowledge and only (6.7%) had average knowledge regarding umbilical cord stem cell collection, preservation and utilization among nurses.

A study was conducted by Catherine Edwin Francis, Deenajothy R, Hemamalini M, Titus Immanuel D C[10] and the results revealed

that after giving structured teaching programme on stem cells and cord blood banking, none of the mothers are having inadequate knowledge score, 28.0% of them are having moderate knowledge score and 72% of them are having adequate score.

CONCLUSION

In pre-test majority of the respondents 43(72%) had inadequate knowledge and 17(28%) had moderately adequate knowledge regarding cord blood banking. After intervention, in post-test majority of the respondents 38(63%) had moderately adequate knowledge and 22(37%) have adequate knowledge. The mean of pre-test knowledge were 11.47 respectively. After intervention the mean of post-test knowledge were 22.07 respectively. The calculated value of "Z" of knowledge 19.08 respectively was highly significant at 0.05 % level. There was significant association between pre-test knowledge with the selected demographic variables like educational qualification, years of experience.

Thus, Structured Teaching Programme was effective in improving the knowledge of staff nurses regarding cord blood banking. Structured Teaching Programme can be used as mass education in hospitals to create awareness among the staff nurses regarding importance of cord blood banking.

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REFERENCE

1. Ballen KK, Barker JN, Stewart SK, Greene MF, Lane TA. Collection and preservation of cord blood for personal use. Biology of Blood and Marrow Transplantation 2008;14(3):356-63.
2. Dinc H, Sahin NH. Pregnant women's knowledge and attitudes about stem cells and cord blood banking. International Nursing Review 2009;56(2):250-6.
3. Jordan H, Perlow MD. Patient's knowledge of umbilical cord blood banking. J of Reproductive Medicine 2006;51(8):642-4.
4. Kumarasamy Sumathy, Muthulakshmi P. Assessing health professionals' knowledge of umbilical cord stem cell. Nightingale Nursing Times 2010;6:16-17.
5. Oulton JA. The international council of nursing code of ethics for nurses (ICN). International Nursing Review 2000;47(3):138-41.
6. Yildirim G, Sahin NH. Stem cell transplantation and nursing approach istanbul university, florence nightingale nursing academy. Nursing J 2007;60(15):25-31.
7. P Devadas. Placental stem cell study. J Anat Soc 2007;56(1)55-108.
8. R Taylor. To assess the knowledge and attitude of nurses regarding cord blood banking. Int Nurs Rev 2010;56(2):250-6.
9. Ujala Joshi, Gopal Singh Charan, Lalita Kumari. A study to assess the knowledge on umbilical cord stem cell collection, preservation and utilization among nurses in the selected hospitals at jalandhar, punjab. International J of Health Sciences and Research 2017;7(8):227-33.
10. Catherine Edwin Francis, Deenajothy R, Hemamalini M, Titus Immanuel DC. Effectiveness of structured teaching programme on knowledge regarding stem cells and cord blood banking among antenatal mothers at Mogappair, Chennai. International J of Phar and Bio Sci 2016;6(1):135-41.