

A DESCRIPTIVE STUDY TO ASSESS THE KNOWLEDGE REGARDING PLACENTAL STEM CELL AND UMBILICAL CORD BLOOD BANKING AMONG STAFF NURSES AT GGS MEDICAL COLLEGE AND HOSPITAL, FARIDKOT, PUNJAB.

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ABSTRACT

INTRODUCTION: Stem cells are the basic building blocks of the body and have the potential to replenish other cells and rise to number of tissues which constitute different organs. Major sources of stem cells are bone marrow, peripheral blood, placental cord blood or cord blood, and embryo. The placental cord blood is one of the richest and non-controversial sources of stem cells. They are the building blocks of the blood, immune system and precursors of various cells and tissues. Today, placental cord blood stem cells are a major breakthrough in regenerative medical research, in the field of medicine worldwide. On an average more than 260 patients receive placental stem cells transplant each month and more than 25,000 transplantations have been done from the year 1998 throughout the world.

AIM: The aim of the study is to assess the knowledge regarding placental stem cell and umbilical cord blood banking among staff nurses and to develop an information booklet.

MATERIALS AND METHODS: A Descriptive research design was used to conduct this study. Original data were collected from 60 staff nurses working in the OBG department, Pediatrics department and Blood banks in the GGS Medical college and Hospital using socio demographic tool and self-structured questionnaire.

RESULTS: The study results revealed that out of the 60 staff nurses 2 (33%) staff nurses were having good knowledge whereas 39 (65%) staff nurses average and 19 (31.7) were having below average knowledge.

CONCLUSION: This study concluded that age and experience of staff nurses had significant relationship with knowledge of staff nurses regarding placental stem cell & umbilical cord banking.

KEY WORDS: Knowledge, staff nurses, placental stem cell, umbilical cord blood bank.

INTRODUCTION

"The Tissue of youth-Human placenta a wonder drug, call it the oxygen bar of future"

Amanda Schaffer

Stem cells are unspecialized cells that have two defining properties i.e. the ability to differentiate in to other cells and the ability to self-regenerate. These cells migrate to injured areas within the body and get transplanted and transform themselves in to new tissue cells that replace the damaged ones. Stem cells have the capacity to multiply and renew themselves almost indefinitely. Stem cells can form nerve cells, muscle cells and blood cells which cannot multiply themselves and have limited life spans. In tissue, that is still developing, stem cells give rise to multiple specialized cells types that can make up the heart, lung, skin, and other tissues.¹

Umbilical cord blood is rich in stem cells, which are the building blocks of the blood and the immune system. These biologically unique cells have the ability to develop into other cell types within the body. Cord blood as a source of Hematopoietic Stem Cell (HSC) has advantages as it is easily available; involves non-invasive collection procedure and is better 155. The Pharma Innovation Journal tolerated across the human leukocyte antigen barrier. Since the first cord blood transplant in 1988, over 2500 cord blood hematopoietic stem cell transplants have been done worldwide. The proliferative capacity of hematopoietic stem cell in cord blood is superior to that of cell in bone marrow or blood from adults.²

Stem cells are found in all multicellular organisms, and are characterized by the ability to renew

through mitotic cell division and differentiate into a diverse range of specialized cell types. The two broad types of mammalian stem cell are embryonic stem cells that are found in adult tissues. Cord blood stems are pluripotent, which is the ability to differentiate into not only including bone, cartilage, hepatic, pancreatic, muscle, epithelial, endothelial, and skin. Till now, approximately 8000 people worldwide have received therapies using the stem cell derived from a newborn's umbilical cord after birth. Used in medical therapies in away similar to stem cell from bone marrow, cord blood stem cell has the power to build a new blood and immune system.⁴ The first UCB bank (Umbilical Cord Blood Banks) was started at the New York blood center in 1992. There are now nearly 142 public banks and at least an additional 25 private banks actively involved around the world in collecting, processing, testing and cryo preserving UCB (Umbilical Cord Blood) for potential future use as therapeutics. There are currently approximately 44 banks over the world and they are connected to the world marrow donor association.

There have been over 15,000 cord blood transplants worldwide through 2009.³

STATEMENT OF PROBLEM

A descriptive study to assess the knowledge regarding placental stem cell and umbilical cord blood banking among staff nurses at GGS Medical College and Hospital, Faridkot, Punjab.

OBJECTIVES

1. To assess the knowledge of staff nurses regarding placental stem cell and umbilical cord blood bank.
2. To find out the association of knowledge with demographic variables such as age, qualification, duration of experience, have heard about umbilical cord blood banking, Inservice training regarding stem cell and umbilical cord blood banking & source of information.
3. To prepare the booklet to enhance the knowledge of staff nurses regarding stem cell & umbilical cord blood banking.

METHODOLOGY

A quantitative research approach and descriptive design was used for the study to assess the knowledge of staff nurses regarding placental stem cell and umbilical cord blood bank.

Original data was collected from staff nurses working in the OBG department, Paediatric department and Blood banks in the GGS Medical college and Hospital using socio demographic tool and self-structured questionnaire during the month of October, 2022. We have included all the staff nurses who were willing to participate and present during the data collection. Sample size was 60 staff nurses by using convenient sampling technique.

Written permission was obtained from Medical Superintendent and Head Of Department of OBG, Pediatrics and Blood Bank. Written Informed consent was taken from all the participants to participate in the study. Final tool included two sections i.e. Section A: Self-structured Socio-

demographic characteristics which comprised of age, qualification, duration of experience, have heard about umbilical cord blood banking, in service training regarding stem cell and umbilical cord blood banking & source of information. Section-B: Self- Structured questionnaire consisted of 25 questions on knowledge assessment regarding stem cell and umbilical cord blood banking. Good knowledge score >20, average score 14-20 whereas below average score was <40. Reliability of tool was computed by split –half method and calculated by karl pearson's correlation coefficient formula. Reliability of tool was found to be 0.75. the data was collected from the subjects who met the inclusion criteria during the period from 6 October to 16 October 2022.

Received data were analyzed by using descriptive and inferential statistics with Statistical product and service solutions (SPSS) as per our study objective stated earlier. Statistical significance (p value) was set at 0.05 for the tests involved.

Results: Most 32(53%) of participants were belong to age between 26-30 years. 25(41.6%) of them have done B.Sc Nursing. Majority 37(61.7%) of them have experience of 0-5years. Maximum number 52(86.7%) of them have heard about umbilical cord blood banking, whereas 31(51.6%) of them had attended In-Service training regarding stem cell & umbilical cord blood banking followed by 29(48.4%) of them had not attended In-Service training. Majority 29(48.3%) of them have got information during their training course.

Table No.1: Frequency & Percentage of Socio-demographic Variables of Participants
N=60

S. No.	Variables	Frequency (Percentage)
1.	Age (in Yrs) a) 20-25 b) 26-30 c) 31-35 d) 36-40	8(13.3%) 32(53%) 16(26.6%) 4(6.6%)
2.	Academic qualification a) M.Sc Nursing b) Post.Basic Nursing c) B.Sc Nursing d) GNM	0 16(26.6%) 25(41.6%) 19 (31.8%)
3.	Duration of experience (in yrs) a) 0-5 b) 6-10 c) 11-15 d) >15	37(61.7%) 18(30%) 2(3.3%) 3(5%)
4.	Have you heard about umbilical cord blood banking a) Yes b) No	52(86.7%) 8 (13.3%)
5.	Have you attended In-service training regarding stem cell & umbilical cord blood banking a) Yes b) No	29(48.4%) 31(51.6%)
6.	Source of Information a) News Papers b) Books c) During course d) Hospital experience	0 20(33.3%) 29(48.3%) 11(18.3)

Table No. 2 Level of Knowledge among Staff Nurses

S.No.	Level of Knowledge	Frequency (Percentage)
1.	Good (>20)	2 (3.3%)
2.	Average (14-20)	39 (65%)
3.	Below average (<14)	19 (31.7%)

This table has revealed that most (65%) of staff nurses have average knowledge score while 31% have below average and only 3.3% have good knowledge score.

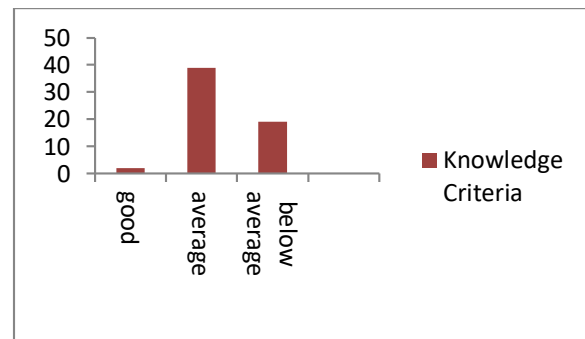


Table 3: To find out the association of knowledge with demographic variables such as age, qualification, duration of experience, have heard about umbilical cord blood banking, inservice training regarding stem cell and umbilical cord blood banking & source of information.

S.No.	VARIABLES	CHI-SQUARE	LEVEL OF SIGNIFICANCE
1	Age	6.29	Significant at $p < 0.05$ level
2	Academic Qualification	4.98	non significant
3	Duration of experience	10.4	Significant at $p < 0.05$ level
4	Have you heard about umbilical cord blood banking	2.4	Non-significant
5	In service education training	2.21	Non-significant
6	Source of information	2.623	Non-significant

There was a significant association of level of knowledge with age and duration of experience ($p < 0.05$ level) and there was non-significant association with academic qualification, have you heard about umbilical cord blood banking and source of information.

DISCUSSION

The findings are discussed in relation to the objectives, need for the study and related literature of the study.

To assess the knowledge of staff nurses regarding placental stem cell and umbilical cord blood bank.

The study revealed that out of the 60 staff nurses 2 (3.3%) staff nurses were having Good knowledge whereas 39 (65%) staff nurses average and 19 (31.7) were having below average knowledge. Similar results have been observed in another study done in 2016 by Venugopal A, Joshi P, to assess the knowledge & attitude of nurses regarding stem cell & tertiary care facility. The study showed that (42.86%) had moderate knowledge regarding stem cells and umbilical cord blood banking.

To find out the association of various variables with knowledge score regarding stem cell and umbilical cord blood banking

There was a significant association of level of knowledge with age and duration of experience ($p < 0.05$ level) and there was non-significant association with academic qualification, have you heard about umbilical cord blood banking and source of information.

These results are in agreement with the study done by M. Jenishia, to assess the knowledge and attitude of staff nurses regarding umbilical cord stem cells before and after the structured teaching program in 2018 it showed that age, years of experience and educational status had a significant association with knowledge score of staff nurses regarding umbilical cord stem cells.

IMPLICATIONS

The researchers had drawn the following implications from the study which was of concern in the area of nursing practice, nursing education and nursing research.

Nursing Practice

- ❖ Storage of umbilical cord blood
- ❖ Importance of umbilical cord blood banking.

Nursing education

- ❖ Seminars, workshops and conferences can be conducted to enhance the knowledge of staff nurses and nursing students.

Nursing Research

- ❖ The research findings can be disseminated through conference, seminar and publish in journals & websites.
- ❖ Nurse Researchers can conduct interventional studies to assess the effectiveness of VATM on knowledge regarding umbilical cord blood banking.

RECOMMENDATIONS

- A similar study can be conducted on a large scale for making more vivid generalization.
- A similar study can be replicated by other designs such as quasi experimental design.
- A pre- experimental study can be conducted to evaluate the effectiveness of structured teaching program regarding umbilical cord stem cells.
- A quasi experimental study can be conducted to assess the effectiveness of video assisted teaching module on knowledge regarding umbilical cord blood banking nursing students and staff nurses.

CONCLUSIONS

The present study assessed the knowledge of staff nurses regarding stem cells and umbilical cord blood bank and the study revealed that out of the 60 staff nurses 2 (3.3%) staff nurses were having Good knowledge whereas 39 (65%) staff nurses average and 19 (31.7) were having below average knowledge

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