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Effectiveness of Structured Teaching Program on Knowledge Regarding Umbilical Cord Stem Cell Banking Among Students

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Abstract
Umbilical cord stem cell banking is the process of collecting and storing stem cells from a newborn's umbilical cord and placenta after birth. These stem cells can later be used for medical treatment.
Objectives; 1.To assess the pre-test knowledge regarding the umbilical cord stem cell bank among students in selected nursing colleges at Kanpur, Uttar Pradesh. 2. To assess the effectiveness of a structured teaching programme on knowledge regarding umbilical cord stem cell banking among students in selected nursing colleges at Kanpur, Uttar Pradesh. 3. To determine the association between the pre-test knowledge score of nursing students with their selected demographic variables. A quantitative research approach, which one group pre-test and post-test design, was used in the study. 50 adolescent students were selected by convenience sampling techniques. Structured knowledge questionnaires were used for data collection. **Result;** among 50 adolescent 76% had poor knowledge, 24% students had average knowledge and no one had good knowledge in the pre-test, and 74% had good knowledge, 26% had average knowledge, no one had poor knowledge in post-test.

Keywords: Umbilical cord stem cell banking, effectiveness, STP, adolescent students.

Introduction

Umbilical cord stem cell banking is the process of collecting and storing stem cells from a newborn's umbilical cord and placenta after birth. These stem cells can later be used formedicaltreatment.Umbilicalcordstemcellbankingisusedtopreservenewbornstemcells for potential future medical use. The umbilical cord stem cell banking contains various treatment of blood and immune disorders, future regenerative therapies, public health support, advance of medical research.[1,2]Cord blood contains all the normal elements of blood - red blood cells, white blood cells, platelets and plasma. But it is also rich in hematopoietic (blood-forming) stem cells, similar to those found in bone marrow. This is why cord blood can be used for transplantation as an alternative to bone marrow.[3] This UCB is collected from the placenta when the expectant mother is in the third stage of labor (after delivery of the baby) or after the delivery of the placenta. The procedure is essentially safe and does not pose any risk either to the baby or the mother if done appropriately[4,5]. There has been a

period of rapid growth in UCB banking because it does not pose any important risk to the donor mother/baby. Further, ease of storage and transport of the frozen tissue, the possibility of performing HLA-mismatched HSC transplants with reduced chances of graft versus host disease (GVHD) are added advantages of using HSCs from the cord blood. Recognition of the clinical utility of UCB both in pediatric and adult patients, along with refinement in techniques for its collection, storage and transplantation, has led to establishments of UCB banks in several countries, including in India.[6,7]

Methodology;

Quantitative research approach with quasi experimental– one group pre test post test research design were used in this study.50 sample were selected by using non probability convenient sampling technique. Data was collected by using structured knowledge questionnaire. Ethical permission was taken from principal before collection of data. Pre test was conducted on day 1 and same day intervention was given and post test was conducted on 7th day.

Result;

Table no.1: Frequency and percentage description of socio-demographic variables of nursing student

N-50

S.NO.	SOCIODEMOGRAPHIC VARIABLES	NURSING STUDENTS	
		FREQUENCY	PERCENTAGE
1.	**Age of the students**		
a)	18-20years	17	34%
b)	21-23years	30	60%
c)	24-26years	3	6%
d)	More than 26	0	0%
2.	**Gender**		
a)	Male	6	12%
b)	Female	44	88%
4.	**Residence area**		
a)	Rural area	5	10%
b)	Urban area	40	80%
c)	Semi urban	5	10%
5.	**Monthly income**		
a)	<5000	7	14%
b)	5000-25000	25	50%
c)	25000-50000	13	26%
d)	>50000	5	10%
7.	**Have you heard about umbilical Cord stem cell banking**		
a)	Yes	35	70%
b)	No	15	30%
8.	**Source of information**		

a)	Newspaper	0	0%
c)	Friend circle	5	10%
d)	Books	35	70%
e)	Others	10	20%

Table No.1 showed that the majority of the population was in the age group of 21-23 years (60%), most of the population were female (88%), majorly students come from urban area (80%) maximum monthly income of their family lies between 5000-25000, most of the students had no heard about umbilical cord stem cell banking before (70%), and majority of them have books was the source of information (70%).

Table no.2: knowledge level of nursing students regarding the umbilical cord stem cell banking.
N=50

Knowledge Level	**Pre-test**		**Post-test**	
	Frequency	**Percentage**	**Frequency**	**Percentage**
POOR	38	76%	0	**0%**
AVERAGE	12	24%	13	26%
GOOD	0	0%	37	74%

Table no 2; Indicated that in the pre-test level of knowledge majority (76%) of nursing students had poor level of knowledge, (12%) had average level of knowledge and none the nursing students had good level of knowledge and in post-test level of knowledge majority (74%) had good knowledge, (26%) had average knowledge and none of the nursing students had poor knowledge.

Tableno.3: Effectiveness of Planned Teaching Programme on knowledge regarding stem cell banking among nursing students.
N=50

SN.	**Knowledge score**	**Mean**	**Mean percentage**	**Calculated 't' value**
1	Pre-test	7.34	48.93%	22.14
2	Post-test	20.18	67.27%	

Table No. 3 showed that the pre-test mean was 7.34 and post test mean was 20.18 and the pre-test mean percentage was 48.93% and post test mean percentage was 67.27%. The calculated t value was 22.14 at df 49 was significant at 0.05 level.

S.NO.	**Socio demographic Variables**	**Poor knowledge**	**average knowledge**	**Good knowledge**	**Chi square**	**significance**
1.	**Age of the students**				χ^2=11.60	Significant
a)	18-20years	13	4	0		
b)	21-23years	25	5	0	df=2	
c)	24-26years	0	3	0		
d)	More than 26	0	0	0	p value =0.003	
2.	**Gender**				χ^2=.09	Not
a)	Male	4	2	0	df=1	Significant

b)	Female	34	10	0	p value =0.76	
4.	**Residence area**				χ^2=0.42	Not Significant
a)	Rural area	3	2	0	df=2	
b)	Urban area	32	8	0	p value	
c)	Semi urban	3	2	0	=0.81	
5.	**Monthly income**				χ^2=3.9	Not Significant
a)	<5000	5	2	0	df=3	
b)	5000-25000	22	3	0	p value	
c)	25000-50000	8	5	0	=0.28	
d)	>50000	3	2	0		
7.	**Have you heard about umbilical Cord stem cell bank-ing**				χ^2=1.34 df=1 p value =0.24	Not Significant
a)	Yes	28	7	0		
b)	No	10	5	0		
8.	**Source of information**				χ^2=1.49	Not Significant
a)	Newspaper	0	0	0		
c)	Friend circle	2	3	0	df=2	
d)	Books	29	6	0		
e)	Others	7	3	0	p value =0.47	

Table no.3 above table showed that there is no significant association of pre-test knowledge score with their selected demographic variable except age.
Age is significant to pre test knowledge score.

Limitation

- The study was confirmed to only50 adolescent students.
- The study was limited to selected Regency institute of nursing Kanpur Uttar Pradesh.

Conclusion

The current study emphasizes the value of cord blood banks for nursing students. Since umbilical cord blood can be collected quickly after delivery and is widely available, it is the responsibility of nurses to educate expectant mothers and their families about the advantages of cord blood banking, collection, and storage, as well as the features and availability of cord blood banks. Thus, the researcher acknowledged the significance of teaching G.N.M students who will work as staff nurses in future. These students will have more responsibilities and roles, including informing parents accurately. They also need to receive proper training in standard operating procedures for collection and storage to maintain the sterility and caliber of the collection unit.

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