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Knowledge regarding umbilical cord stem cell storage among III year B.Sc (N) students

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Abstract
Background: Umbilical cord blood is increasingly being used as a source of stem cells in the treatment of over 80 diseases, including leukemias, myelomas, lymphomas, genetic disorders/ diseases, immune system deficiencies, and blood cell disorders. Stem cells from cord blood are much easier to get because these cells are readily obtained from the cord and the placenta at the time of delivery.
Objectives: 1. To assess the level of knowledge regarding umbilical cord stem cell storage among III year B.Sc (N) students in Narayana college of nursing, at Nellore. 2. To find the association between the level of knowledge regarding umbilical cord stem cell storage among III year B.Sc (N) with their selected Socio demographic variables.
Materials and Methods: Descriptive design with non-probability Convenience sampling technique, 30 III YEAR B.SC Nursing students from Narayana College of nursing.
Results and Conclusion: Shows that with regard to level of knowledge regarding umbilical cord stem cell storage among III year BSC (N) students 1(3.3%) had A+ grade, 1(3.3%) had A grade, 15(50%) had B+ grade, 8(26.7%) had B grade, 5(16.7%) had C grade.

Keywords: knowledge, umbilical cord, stem cell storage, student nurses

Introduction
Umbilical cord is the vital direct interlink between mother and fetus, which is always depicted as the relationship of an emotional bonding of motherhood, which is a beautiful experience for a women. When mother gives birth, the blood that remains in the placenta and umbilical cord is referred as cord blood. This particular blood contains numerous hematopoietic stem cells that have the ability to differentiate into other cells and the ability to self-degenerate. Stem cells are found in all multi cellular organisms, and are characterized by the ability to renew through mitotic cell division and differentiate into a diverse range of specialized cell types. Cord blood stem cells are pluripotent, which is the ability to differentiate into not only different blood cell types, but potentially into different types of tissue including bone, cartilage, hepatic, pancreatic, neurologic, muscle, epithelial, endothelial, and skin.

The stem cells obtained from umbilical cord blood are less likely to be rejected in transplants than bone marrow stem cells. Considered immunologically immature, umbilical cord blood stem cells produce significantly fewer natural killer cells, creating a substantial decrease in rejection, and can be used as a truly ethical therapy. Consequently, cord blood stem cells require less rigorous antigen tissue matching for transplants than bone marrow stem cells. Research indicates that a mismatch of up to two antigen sites still provides successful clinical outcomes.

Need for the study
In India about 25,000 cord blood units had been preserved over the last three years. With more than 80,000 births per day or 26 million births a year, India is poised to be the largest source for umbilical cord blood in the world. With the development and simplification of the procedures for Umbilical card blood stem cell Storage and transplantation field experience should be continuously analyzed by an expert group to ensure timely application of this technology for treatment of acute and chronic diseases. Studies are in progress to establish standards for collection of placenta cord blood and to determine the safety and utility of this source of stem cells in hematopoietic reconstitution.

AL Khal AL (2014) Conducted a study was done to compare the hematopoietic stem cells with placental blood and umbilical cord blood in children hospital and research centre, Oakland. Placental hematopoietic progenitors were isolated using the basic method of isolation of enzymatic digestion treatment of placental cell and staining them. Isolation of hematopoietic progenitors from umbilical cord blood was done by the same method. At least three preparations of same type were analysed. Placental samples from 5.4 weeks to 39.5 weeks were analysed for cells expressing both cd34 and cd45 hematopoietic progenitors cell surface markers, and it was observed that frequency of placental cells was cd34+ cd45(2.86-20.91%) and cd34++cd45low(0.03-1.2%)that was significantly more than hematopoietic progenitors cell that were found in umbilical cord blood.

Statement of the problem

A Study To Assess The Level Of Knowledge Regarding Umbilical Cord Stem Cell Storage Among III Year B.Sc(N) Students In Narayana College Of Nursing, At Nellore

Objectives of the study

- To assess the level of knowledge regarding umbilical cord stem cell storage among III year B.Sc (N) students in Narayana College of nursing, at Nellore.
- To find the association between the level of knowledge regarding umbilical cord stem cell storage among III year B.Sc(N) with their selected Socio demographic variables

Limitations

Study is limited to

- III rd year BSc(N) students available at time of data collection
- Sample size of 30 III year BSc(N) students
- One week of data collection Period only

Methodology

Research Approach: The Quantitative Research Approach.

Research Design: A Descriptive Research Design

Settings: The study was conducted in Narayana College of Nursing at Nellore.

Target Population: The target population was III year B.sc nursing students from Narayana College of Nursing at Nellore.

Sample Size: The Sample Size is 30.

Sampling Technique: Non Probability Convenience Sampling Technique.

Sampling Criteria

Inclusion criteria

- III year BSC nursing students who are willing to participate the study
- III year BSC nursing students who are available at the time of data collection

Exclusion criteria

- III year BSC nursing students who are absent to the college during data collection
- III year BSC nursing students who are not willing to participate in the study

Those who are first, second and fourth year BSC nursing students

Descriptive Tool

The tool was developed with the help of related literature from the various text books, journals, websites, discussion and guidance from the experts

Two consist of two parts

Part-I: Consist of questions to collect the demo data like age, religion, source of information.

Part-II: Consist of structured questionnaire to assess the level knowledge of umbilical cord blood stem all storage.

Result and Discussion

Table 1: Frequency and percentage distribution of level of knowledge regarding umbilical cord stem cell storage among III year BSC nursing students. (n=30)

Level of knowledge	Frequency (f)	Percentage (%)
A+	1	3.3
A	1	3.3
B+	15	50
B	8	26.7
C	5	16.7
Total	30	100

Table 1: Shows that with regard to level of knowledge regarding umbilical cord stem cell storage among III year BSC (N) students 1(3.3%) had A+ grade, 1(3.3%) had A grade, 15(50%) had B+ grade, 8(26.7%) had B grade, 5(16.7%) had C grade.

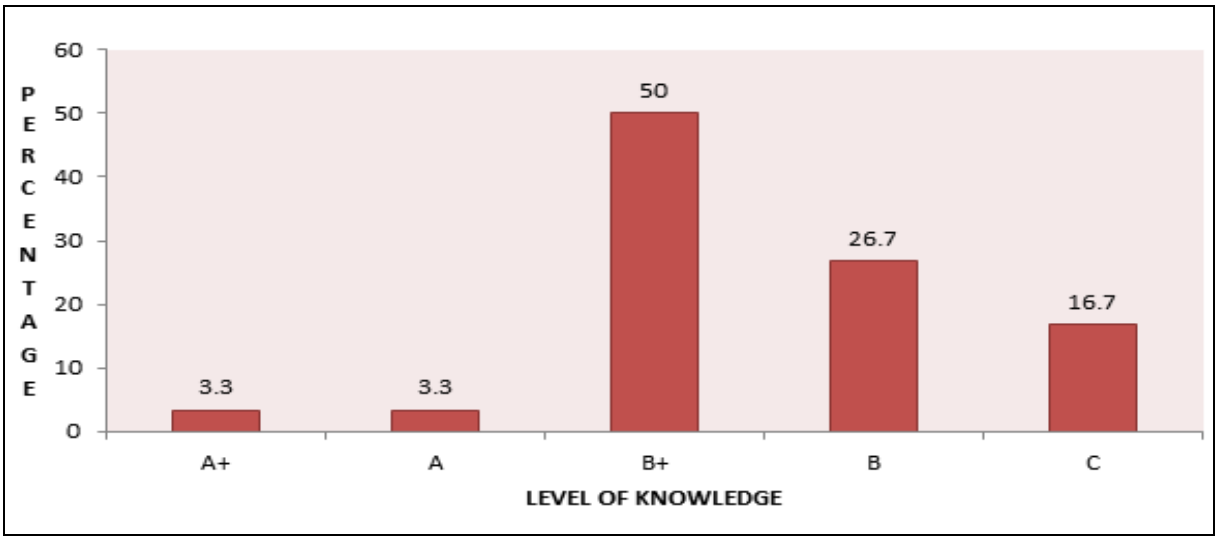

Fig 1: Percentage distribution of III year BSC (N) students based on level of knowledge.

Table 2: Mean and standard deviation of level of knowledge regarding umbilical cord stem cell storage among III year BSC nursing students.

Group	Mean	Standard deviation
III year BSC (N) students	17	2.22

Table-2: shows that mean and standard deviation of level of knowledge regarding umbilical cord stem cell storage mean is 17 and standard deviation is 2.22.

Table 3: Association between the level of knowledge regarding umbilical cord stem cell storage with their selected socio demographic variables. (n=30)

Demographic variables	A+		A		B+		B		C		Chi squire X^2
	f	%	f	%	f	%	f	%	f	%	
Age											C=11.6
a. 21-22 years	-	-	1	3.3	13	43.3	8	26.6	5	16.6	T=11.07
b. 23-24 years	1	3.3	-	-	2	6.6	-	-	-	-	df=5
											S*
											P=0.05

In association with age in nursing students the calculated value is 11.6 and the table value is 11.07, at p=0.05 level. The calculated value is higher than the table value; hence there is significant association between age and level of knowledge.

Recommendation

On the level of findings of the study the following recommendation have been made,

1. A similar study can be replicated on large sample size, in different settings, with in different population as longitudinal study.

Conclusion

The study was new beginning for record the knowledge of nursing students about umbilical cord stem cell storage. This gives a new learning experience for the investigator. The overall experience of conducting the study was satisfied. The result of present study shows there was a great response from nursing students in knowledge regarding umbilical cord stem cell storage.

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