(RESEARCH ARTICLE)

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A study to assess the knowledge and attitude regarding uses of umbilical cord blood storage among antenatal mothers in selected rural areas at Tumkur district with a view to develop an information booklet

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Abstract

Abstract: A Child is emotionally, physically bond to mother from the period of conception. The fetus receives its nutrition for survival from mother through the umbilical cord. The placenta which is attached to uterus supplies the essential nutrients to fetus for its growth and development. Umbilical cord is a bridge between both mother and fetus.

Objectives: The objectives of the study are to assess the knowledge regarding uses of umbilical cord blood storage among antenatal mothers in selected rural areas andto assess the attitude regarding uses of cord blood storage among antenatal mothers in selected rural areas and find out the co-relation between knowledge and attitude onuses of umbilical cord blood storage among antenatal mothers in selected rural areas however to find out an association between the level of knowledge onuses of umbilical cord blood storage with selected demographic variables and finally find out an association between the level of attitude onuses of umbilical cord blood storage with selected demographic variables.

Methodology: A descriptive co- relational approach was adopted for the study. Non probability convenient sampling technique were used for the collection of data with Structured questionnaire for knowledge assessment and 3 point Likert's scale for attitude evaluation were used for the data collection from 100 antenatal mothers at selected rural areas of Tumkur District.

Result: Result of the study reveal that the frequency and percentage distribution of demographic variables of the antenatal mothers regarding age, most of the mothers belongs to 26-30 years,53%,almost 60 (60%) of mothers are Hindus, 87 (87%) of mothers had higher seconder education,66 (66%) of were house wives,69 (69%) were belongs to nuclear family,81(81%) mothers income were ranging from 5001-10000, in relation to type of house 80(80%)of mothers were living in pucca house and majority of antenatal mothers 70(70%)were got information from professional health workers. Regarding level of knowledge of antenatal mothers, in which majority of antenatal mothers72(72.0%) are having inadequate knowledge, 28 (28.0%) were found to have moderately adequate, and 00 (0.0%) of them had adequate knowledge regarding uses of umbilical cord blood storage. The present study shows that the highest Mean score of antenatal mothers is 3.86 with SD of 1.55 and Mean percentage score was 48.25% obtained for knowledge on utilization and importance of umbilical cord blood storage. The lowest Mean score of subjects was 0.51 with SD 0.59 and Mean percentage score was 25.5% for knowledge on misbelieves and side effects on uses of umbilical cord blood storage and stem cell transplantation. In the aspect of collection and storage of umbilical cord blood storage the mean knowledge was 3.31 with SD of 1.48 and mean Percentage score was 36.77%. In the aspect of definition and indications on uses of cord blood storage the mean was 3.11 with SD of 0.96 and mean percentage score was 51.33. The overall Mean and SD of subjects is 10.79 with SD 2.85, and the Mean percentage score of subjects for overall knowledge is 43.16. This indicates that the antenatal mothers have inadequate knowledge regarding definition, indications, collection,

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storage importance, utilization and misbelieves and side effects of umbilical cord blood storage and stem cell transplantation 89 (89.0%) of 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. The mean percentage of overall attitude levels 82.86% with mean 29.83 and SD 1.88. Correlation coefficient computed between the overall Mean knowledge and overall Mean attitude of antenatal mothers as r = -0.18 which was found to be not significant at p<0.05 level hence it suggest that there is anegative correlation between knowledge and attitude regarding uses of umbilical cord blood storage among antenatal mothers. In relation to religion and occupation the chi-square value obtained was χ2 =5.94, df=1 and χ2 = 11.43, df=3 respectively which showed significance at p<0.05 level. In relation to variables such as age, educational status, type of family, monthly income type of house and source of previous information on uses of cord storage, the chi-square values obtained was χ2=5.4, χ2=5.94, χ2=0.10, χ2=0.67, χ2=2.79 and χ2=1.23 respectively which does not show any association with level of knowledge. shows the association between selected demographic variables such as Age, Religion, Educational status, occupation of the mother, family, monthly income, type of house and source of previous information onuses of cord storage. In relation to occupation and type of house the chi-square value obtained was χ2=10.74, df=3 and χ2=7.49, df=2 respectively which showed significance at p<0.05 level. There is no statistical significant association between Age, Religion, Educational status, type of family, monthly income, and source of previous information with attitude regarding uses of umbilical cord blood storage.

Conclusion: The conclusion drawn from the study includes, the findings of present study revealed that regarding uses of umbilical cord blood storage, 72(72.0%) were having inadequate knowledge, 28 (28.0%) were found to have moderately adequate, and 00 (0.0%) of them had adequate knowledge regarding uses of umbilical cord blood storage. The overall Mean and SD of subjects is 10.79 with SD 2.85, and the Mean percentage score of subjects for overall knowledge is 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. The mean percentage of overall attitude levels was 82.86% with mean 29.83 and SD 1.88. The correlation coefficient computed between the overall Mean knowledge and overall Mean attitude of antenatal mothers as r = -0.18 which was found to be not significant at p<0.05 level hence it suggest that there is a negative correlation between knowledge and attitude regarding ses of cord storage among antenatal mothers. The obtained chi-square value shown that there was significant association between the level of knowledge with religion χ2 =5.94, df=1 and occupation χ2 = 11.43, df=3. at p<0.05 level. There was significant association between attitude and occupation χ2=10.74, df=3 and type of houseχ2=7.49, df=2 respectively which showed significance at p<0.05 level.

Keywords: Umbilical Cord blood storage; Antenatal mothers; Rural areas; Information booklet

1 Introduction

A Child is emotionally, physically bond to mother from the period of conception. The fetus receives its nutrition for survival from mother through the umbilical cord.[1]The placenta which is attached to uterus supplies the essential nutrients to fetus for its growth and development. Umbilical cord is a bridge between both mother and fetus.What could be more precious than gifting an unborn child a way to fight hematopoietic, genetic or immune system diseases for the rest of his or her life? The birth of a child presents us a very unique opportunity along with the happiness, the occasion delivers us that we have someone more, very important, to care about. This power to produce different kinds of specialized cells makes them so unique and potent for medical therapy.[1]Dr.Mary Laughlin says "For the last two centuries of medicine, doctors have used surgery or drugs as tools to help our patients and to treat disease. Drugs, however, do not alter the underlying disease. They treat the symptoms, but generally they aren't cures. Today we stand on the threshold of curing disease. Curing disease by transplanting stem cells is a huge change.[2]Similarly bone marrow transplantation has been used as a means to cure hematological disease, hematological malignancy, malignant solid tumors, congenital immunodeficiency syndrome, and some metabolic diseases.[3] The un-availability of bone marrow donors and the problems related to bone marrow transplantation including graft failure and graft- versus- host disease, have urged the search for alternative sources for marrow cells. Until recently, the placenta representing a significant source of fetal blood stem cells was discarded after birth. Since the evaluation by researchers of umbilical cord being a potential source for haemopoietic stem cells (HPSC), and the evidence of advantages over bone marrow, attention has shifted to the establishment of umbilical cord storage.[4] Here immediately after the baby's delivery the umbilical cord is clamped from the newborn and a needle attached to a collection bag pre-coated with anticoagulant is inserted in the vein in the umbilical cord. The cord blood measuring approximately 40-150 ml is collected into the bag by gravity drainage. Collected cord blood is cryopreserved in liquid nitrogen and stored at around minus 180 degree centigrade in a cord blood bank for future transplantation.[5]The first clinically documented use of cord stem cells was in the successful treatment of a six-year-old boy afflicted by Fanconi's anemia by Dr. Elaine Gluckmen in 1988, in Paris. Since then, cord has become increasingly recognized as a source of stem cells that can be used in stem cell therapy.[6]

2   Material and methods

A descriptive co- relational approach was adopted for the study. Non probability convenient sampling technique were used for the collection with Structured questionnaire for knowledge assessment and 3 point Likert's scale for attitude evaluation were used for the data collection from 100 antenatal mothers atselected rural areas of Tumkur District.

3   Results and discussion

Section A: Description of demographic characteristics of antenatal mothers.

Table 1 Frequency and percentage distribution of antenatal mothers based on demographic variables

Frequency and percentage distribution of antenatal mothers based on demographic variables such as Age, Religion, education, occupation and type of family N=100			
Sl. No	**Demographic characteristics**	**Frequency (f)**	**Percentage (%)**
1	**Age in years**		
	20-25	45	45.0
	26-30	53	53.0
	31-35	2	2.0
2	**Religion**		
	Hindu	60	60.0
	Muslim	40	40.0
3	**Education of the mother**		
	Illiterate	-	-
	Primary	04	4.0
	Higher secondary	87	87.0
	College	09	9.0
4	**Occupation of the mother**		
	Unemployed/House wife	66	66.0
	Self employed	24	24.0
	Professional	08	8.0
	Govt employed	02	2.0
5	**type of the family**		
	Nuclear	69	69.0
	Joint	31	31.0
	Extended	00	00
Frequency and percentage distribution of antenatal mothers based on demographic variables such as monthly income in rupees, type of house and source of information N=100			
Sl. No	**Demographic characteristics**	**Frequency (f)**	**Percentage (%)**
6	**Monthly income in rupees**		
	Less than 5000	04	4.0

	5001-10000	81	81.0
	10001-15000	15	15.0
	15001 and above		
7	**Type of house**		
	Pucca	80	80.0
	Kaccha	18	18.0
	Semi pucca	2	2.0
8	**Source of previous information onuses of umbilical cord blood storage**		
	Relatives/friends	25	25.0
	Health professionals	70	70.0
	Mass media	5	5.0
	A.V aids		

Section B: Assessment of the level of knowledge regardinguses of umbilical cord blood storage among antenatal mothers

The level of knowledge regardinguses ofumbilical cord blood storage among antenatal mothers was divided into 3catagories.

- <50%- Inadequate knowledge
- 50-75 %- Moderately adequate knowledge
- >75 %-Adequate knowledge

Table 2 Frequency and percentage distribution of knowledge of antenatal mothers regarding uses of umbilical cord blood storageN= 100

Sl. No	Level of knowledge	Frequency (f)	Percentage (%)
1	Inadequate knowledge	72	72
2	Moderately adequate knowledge	28	28
3	Adequate knowledge	00	00
4	Over all	100	100

Table 3 Mean Standard Deviation & Mean percentage of knowledge of antenatal mothers regardinguses of umbilical cord blood storageN=100

Sl. No	Aspects of knowledge	Maximum score	Range Score	Mean	SD	Mean percentage score
1	Definition and indications of umbilical cord blood storage	6	0-6	3.11	0.96	51.33
2	Collection and storage of umbilical cord blood	9	0-7	3.31	1.48	36.77
3	Utilization and importance of umbilical cord blood storage	8	0-7	3.86	1.55	48.25

| 4 | Misbelieves and side effects on uses of umbilical cord blood storage and stem cells transplantation | 2 | 0-2 | 0.51 | 0.59 | 25.5 |
| 4 | Over all knowledge | 25 | 0-18 | 10.79 | 2.85 | 43.16 |

Section C: Assessment of attitude of antenatal mother'sregardinguses of umbilical cord blood storage.

The level of attitude of antenatal mother'sregardinguses of umbilical cord blood storagewas divided in to 3 categories

- <50%- Unfavorable attitude
- 50-75%- Moderately favorable attitude
- >75%-Favorable attitude

Table 4 Frequency and percentage distribution of attitude of antenatal mother'sregardinguses of umbilical cord blood storageN=100

Sl.no.	Level of attitude	Frequency (f)	Percentage (%)
1	Unfavourable attitude	0	0.0
2	Moderately favourable attitude	11	11.0
3	Favourable attitude	89	89.0
4	Over all	100	100.0

Table 5 Mean Standard Deviation & Mean percentage of knowledge of antenatal mothers regarding uses umbilical of cord blood storageN=100

Sl.No	Aspects	Maximum score	Range Score	Mean	SD	Mean percentage
1	Overall attitude	36	24-34	29.83	1.88	82.86

Section E: Association between knowledge and attitude regardinguses of umbilical cord blood storage among antenatal mothers with selected socio-demographic variables.

Table 7 Association of knowledge with selected demographic variables of antenatal mothers

Association of knowledge with selected demographic variables of antenatal mothers such as Age, Religion, Educational status, occupation of the motherN=100								
S.No	Demographic characteristics	No. (f)	%	Knowledge				χ^2- value	p-value
				<Median11		≥Median11			
				(f)44	%	(f)56	%		
1	**Age in years**								
	20-25	45	45	25	55.5	20	44.4	5.4, df=2, NS	p>0.05
	26-30	53	53	19	35.8	34	64.1		
	31-35	2	2	0	0	2	100		
2	**Religion**								
	Hindu	60	60	23	38.3	37	61.6	5.94* df=1, S	P<0.02
	Muslim	40	40	21	52.5	19	47.5		

3	Education of the mother							
	Illiterate	00	00	00	00	00	00	0.59, df=2, NS	p>0.05
	Primary	4	4	1	25	3	75		
	Higher secondary	87	87	39	44.8	48	55.5		
	College	9	9	4	44.4	5	55.5		
4	Occupation of the mother								
	House wife	66	66	35	53.0	31	46.9	11.43* df=3, S	P<0.02
	Self employed	24	24	6	25	18	75		
	Professional	8	8	1	12.5	7	87.5		
	Government employee	2	2	2	100	0	0		

Association of knowledge with selected demographic variables ofantenatal motherssuch as type of house, monthly income in rupees, and source of information.N=100

5	Type of family								
	Joint family	69	69	29	42.0	40	57.9	0.10, df=1, NS	p>0.05
	Nuclear family	31	31	15	48.3	16	51.6		
	Extended family	00	00	00	00	00	00		
6	Monthly income								
	<5000 Rs	4	4	2	50	2	50	0.67, df=2, NS	p>0.05
	5001-10000 Rs	81	81	36	44.4	45	55.5		
	10001-15000 Rs	15	15	6	40	9	60		
7	Type of house								
	Puccaa	80	80	38	47.5	42	52.5	2.79 df=2,NS	P>0.50
	Kachha	18	18	6	33.3	12	66.6		
	Semipucca	2	2	0	0	2	100		
8	Source of information								
	Relatives/friends	25	25	11	44	14	56	1.23, df=1,NS	P>0.50
	Professional health workers	70	70	32	45.7	38	54.2		
	Mass media	5	5	1	20	4	80		
	A.V aids	00	00	00	00	00	00		

Table 8 Association of attitude with selected demographic variables of antenatal mothers such asAge, Religion, Educational status, occupation of the mother, monthly income, type of family, type of house and source of previous information onuses of cord storageN= 100

S.No	Demographic characteristics	No. (f)	%	Attitude				χ²- value	p-value
				<median30		≥median30			
				(f)	%	(f)	%		
1	**Age in years**								
	20-25	45	45	22	48.8	23	51.1	2.93,df=2, NS	p>0.50
	26-30	53	53	17	32.0	36	67.9		
	31-35	2	2	1	50	1	50		
2	**Religion**								
	Hindu	60	60	21	35	39	65	1.17, df=1, NS	p>0.10
	Muslim	40	40	19	47.5	21	52.5		
3	**Education of the mother**								
	Illiterate							3.21, df=2, NS	p>0.50
	Primary	4	4	3	75	1	25		
	Higher secondary	87	87	35	40.2	52	59.7		
	College	9	9	2	22.2	7	77.7		
4	**Occupation of the mother**								
	House wife	66	66	26	39.3	40	60.6	10.74* df=3, S	P<0.02
	Self employed	24	24	12	50	12	50		
	Professional	8	8	0	0	8	100		
	Government employee	2	2	2	100	0	0		
5	**Type of family**								
	Joint family	69	69	28	40.5	41	59.4	0.026 df=1,NS	p>0.50
	Nuclear family	31	31	12	38.7	19	61.2		
	Extended family								
6	Monthly income								
	<5000 Rs	4	4	2	50	2	50	0.32, df=2, NS	p>0.50
	10001-15000 Rs	15	15	4	26.6	11	73.3		
7	**Type of house**								
	Pucca	80	80	28	35	52	65	7.49* df=2, S	P<0.05
	Kuchha	18	18	12	66.6	6	33.3		
	Semipucca	2	2	0	0	2	100		
8	**Source of information**								
	Relatives/friends	25	25	11	44	14	56	0.02, df=2,NS	P<0.02
	Professional health workers	70	70	24	34.2	46	65.7		
	Mass media	5	5	5	100	0	0		

4   Conclusion

The conclusion drawn from the study includes, the findings of present study revealed that regarding uses of umbilical cord blood storage, 72(72.0%) were having inadequate knowledge, 28 (28.0%) were found to have moderately adequate, and 00 (0.0%) of them had adequate knowledge regarding uses of umbilical cord blood storage. The overall Mean and SD of subjects is 10.79 with SD 2.85, and the Mean percentage score of subjects for overall knowledge is 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. The mean percentage of overall attitude levels was 82.86% with mean 29.83 and SD 1.88. The correlation coefficient computed between the overall Mean knowledge and overall Mean attitude of antenatal mothers as r = -0.18 which was found to be not significant at $p<0.05$ level hence it suggest that there is a negative correlation between knowledge and attitude regarding uses of umbilical cord blood storage among antenatal mothers. The obtained chi-square value shown that there was significant association between the level of knowledge with religion χ^2 =5.94, df=1 and occupation χ^2 = 11.43, df=3. at $p<0.05$ level. There was significant association between attitude and occupation χ^2 =10.74, df=3 and type of houseχ^2 =7.49, df=2 respectively which showed significance at $p<0.05$ level.

Compliance with ethical standards

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