EFFECTIVENESS OF STRUCTURED TEACHING PROGRAMME ON KNOWLEDGE AND ATTITUDE REGARDING CORD BLOOD STEM CELL THERAPY AMONG ANTENATAL MOTHERS IN SELECTED PRIVATE HOSPITALS

Dissertation Submitted To

THE TAMIL NADU DR.M.G.R.MEDICAL UNIVERSITY

CHENNAI

IN PARTIAL FULFILMENT OF REQUIREMENT FOR THE DEGREE OF

MASTER OF SCIENCE IN NURSING

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INTERNAL EXAMINAR:	**EXTERNAL EXAMINAR:**
Signature:	**Signature:**
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CERTIFICATE

This is to certify that, this thesis, titled, **"A STUDY TO ASSESS THE EFFECTIVENESS OF STRUCTURED TEACHING PROGRAMME ON KNOWLEDGE AND ATTITUDE REGARDING CORD BLOOD STEM CELL THERAPY AMONG ANTENATAL MOTHERS IN SELECTED PRIVATE HOSPITALS AT NAMAKKAL DISTRICT ",** submitted by **Mrs. S.GOMATHI., II year M.Sc., Nursing** (**2014-2015 Batch)** Arvinth College of Nursing in partial fulfillment of the requirement of the Degree of Master of Science in Nursing from The Tamil Nadu Dr. M.G.R Medical University is her original work carried out under our guidance.

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CHAPTER –I
INTRODUCTION

BACKGROUND OF THE STUDY

Cell is the structural and the functional unit of all the organisms on the earth and Cell Science is a scientific discipline that studies the structure and the physiological characters of these cells. Human beings are multi-cellular organisms with an estimated 100,000,000,000,000 cells.

Cord blood stem cell research has been extensively explored worldwide to enhance human health in medical setting. Stem cells have tremendous promise to helping us to understand and treat a range of various diseases, injuries and other health-related conditions. Their potential is evident in the use of cord blood stem cells to treat diseases of the blood, A cord blood stem cell therapy has saved the lives of thousands of children with leukemia; and can be seen in the use of stem cells for tissue grafts to treat diseases or injury to the bone, skin and surface of the eye. Important clinical trials involving stem cells are underway for many other conditions and researchers continue to explore new avenues using stem cells in medicine.

Cord blood stem cell research has the potential to teach us more about how birth defects occur and how these can be prevented or possibly reversed. An understanding of the regulation and chemical triggers of stem cell proliferation and differentiation are key to addressing birth defects.

Cord blood stem cells are undifferentiated biological cells that can differentiate into specialized cells and can be divided and to produce more cord blood stem cells. Stem cells sources are A. Adult/somatic stem cell 1. Bone marrow (drilling into femur or iliac crest) 2. Adipose tissue – lipids cells extr1acted by liposuction. 3. Blood – Blood from the donor passed through a machine that extracts stem cells. B. Umbilical cord blood C. Blastocyst

Cord blood stem cell researchers are making great advances in understanding normal development, figuring out what goes wrong in disease and developing and testing

potential treatments of patients.They still have so much to learn, however, about how stem cells work in the body and their capacity for healing , safe and effective treatments for most of the diseases, various conditions and different types of injuries are in the future.

Cord blood stem cells are the foundation for every organ and tissue in our body. There are many different types of stem cells that comes from different places in the body are formed at different times in our lives. These include 1. Embryonic stem cells. 2.Tissue-specific stem cells 3.Mesenchymal stem cells–Bone Marrow 4. Induced pluripotent stem cells – Skin Cells to embroyonic 5.Haematopoietic stem cells found in umbilical cord.

Embryonic stem cells are obtained from the inner cell mass of the blastocyst, a mainly hollow ball of cells, in the human, forms between three to five days after an egg cell is fertilized by a sperm. A human blastocyst is about the size of the dot above this "I." Embryonic stem cells are pluripotent, meaning they can give rise to every cell type in the fully formed body, but not the placenta and umbilical cord.

Tissue-specific stem cells (also referred to as somatic or adult stem cells) are more specialized than the embryonic stem cells. Typically, these stem cells can generate different cell types for the specific tissue or organ in which they live. For example, blood-forming (or hematopoietic) stem cells in the bone marrow can give rise to red blood cells, white blood cells and platelets.Tissue-specific stem cells are difficult to find in the human body, and they don't seem to self-renew in culture as easily as embryonic stem cells do.

Mesenchymal Stem Cells are multipotent stem cells normally found in the bone marrow and are derived from mesenchyme. They differentiate into adipocytes, chondrocytes, osteoblasts, myocytes and tendon. Mesenchymal Stem Cells can also be extracted from blood, fallopian tube, fetal liver and lungs.

Induced pluripotent stem cells are cells that have been engineered in the lab by converting tissue-specific cells, such as skin cells, into cells that behave like embryonic stem cells. Induced pluripotent stem cells are critical tools to help scientists learn more about normal development and disease onset and progression, and they are also useful for developing and testing new drugs and therapies.

The umbilical cord blood contains haematopoietic stem cells - similar to those found in the bone marrow - and which can be used to generate red blood cells and cells of the immune system. Cord blood stem cells are currently used to treat a range of blood disorders and immune system conditions such as leukaemia, anaemia and autoimmune diseases. These stem cells are used largely in the treatment of children but have also started being used in adults following chemotherapy treatment.

The future experts believe that umbilical cord blood is an important source of haematopoietic stem cells and expect that its full potential for treatment of blood disorders is yet to be revealed. Other types of stem cells such as induced pluripotent stem cells may prove to be better suited to treating non-blood-related diseases, but this question can only be answered by further research.

NEED FOR THE STUDY

This study aimed to assess the level of stem cell knowledge, attitude toward stem cell application in medicine.Now-a-days prenatal mothers may have inadequate knowledge and attitude regarding Cord blood stem cell therapy.Umbilical cord blood supplies are not sufficient to meet the high transfusion needs. This study was designed to determine opinion about preservation of umbilical cord blood, identify the reasons for the lack of motivation to donate umbilical cord blood and allow experts to establish better recruitment campaigns to enrich the donor pool.

Cerebral palsy, a condition where the brain is unable to control the muscles of the body, impacts as many as 10,000 newborns each, according to the Center for Disease Control (CDC). An experimental procedure at Duke University in North Carolina is being used with great success to treat this condition. Children with cerebral palsy are being infused with their own cord blood stem cells to heal and repair damaged brain tissue.

Clearly, stem cell use is exciting and holds great promise for treating and curing many diseases in the future. Their importance ranges from an understanding of the principles behind human development to the cell based therapies addressing those aspects that go away during development and lead to treating a disease.

For those who are already suffering from a disease that stem cells can treat, such as certain cancer types, stem cells may currently have more personal importance and relevance. For others, it is likely that at some point in their life, they or a loved one will be affected by a disease that stem cells can treat, so it's good to keep abreast of stem cell research. Improve the health and well being of the person those love by preservation of umbilical cord blood stem cells.

As Cord blood stem cells have an ability to grow and differentiate, they are being considered as the treatment option to replace the diseased cells, tissue repairs so as to improve the efficiency and working of a failing organ and organ system e.g. failing heart to function due to damage to the cardiac tissues and muscles. Thus stem cells offer the possibility of a renewable source for replacement of the affected cells and tissues to treat variety of diseases, trauma and injuries. Stem-cell banks help to preserve the embryonic stem cells that can be used to treat diseases in adult-life and this practice of preservation is the boon for the mankind.

Genetic disorder rate in india 64.4 % (per 1000 live births),Rao and Ghose (2005) report that 1 out of 20 children admitted to hospital has a genetic disorder that ultimately account for about 1 out of 10 childhood deaths. In India ultimately urban area are affected with congenital malformation and genetic disorder are the third most common cause of mortality in newborns.

Haemophilia A (clotting factor VIII deficiency; MIM: 306700) is the most common form of the disorder, occurring at about 1 in 5,000 to 10,000 male births. Haemophilia B (factor IX deficiency; MIM: 306900) occurs at about 1 in about 20,000-34,000 male births, with no significant racial difference. Female carriers may also bleed abnormally, because some have low levels of the relevant clotting factor. The birth rate haemophilia in India is 32 per 1,000 live births. Thalassemia is a blood related disorder that is mostly transmitted in autosomal recessive mode. There are an estimated 60-80 million people in the world who carry the beta thalassemia trait. People who carry thalassemia in India alone number approximately 30 million. In India, beta thalassemia is very common in the north eastern region with a frequency of 7-64%. High frequency of beta thalassemia trait is also reported in Gujarat, Punjab, Tamil Nadu and West Bengal.

In Namakkal district (3 male and 0 female) among men head and neck cancers (10 cases) and genitor urinary cancer (9 cases are prevalent)

Umbilical cord blood collected at birth is a rich source of stem cells that can be used in research and in the clinic to treat various diseases of the blood and immune system. With the consent of the parents, blood can be collected from the umbilical cord of a newborn baby shortly after birth. This does not hurt the baby or the mother in any way, and it is blood that would otherwise be discarded as biological waste along with the placenta (another rich source of stem cells) after the birth.

The Cord blood stem cell therapy is needed to treat children with cancerous blood disorders such as leukemia, or genetic blood diseases like fanconi anaemia.The cord blood is transplanted into the patient , where the (HSCs) Haematopoietic stem cells can make new, healthy blood cells to replace those damaged by the patient's disease or by a medical treatment such as chemotherapy for cancer.

Researcher have a own interest to do research on knowledge and attitude regarding stem cell therapy among antenatal mothers.

STATEMENT OF THE PROBLEM

A study to assess the effectiveness of Structured Teaching Programme on knowledge and attitude regarding cord blood stem cell therapy among antenatal mothers in selected private hospitals at Namakkal dist.

OBJECTIVES

1. To assess the pre test knowledge and attitude regarding cord blood stem cell therapy among antenatal mothers
2. To assess the effectiveness of structured teaching programme on cord blood stem cell therapy among antenatal mothers
3. To correlate knowledge and attitude regarding cord blood stem cell therapy among antenatal mothers
4. To find the association between post test knowledge and attitude regarding stem cell therapy among antenatal mothers with their selected demographic variables such as Age ,Religion, Gravida, Education, Previous source on cord blood stem cell therapy.

HYPOTHESIS

- H1- There will be significant difference between pre and post test knowledge and attitude score regarding cord blood stem cell therapy among antenatal mothers.

- H2- There will be significant association between post test knowledge and attitude score with selected demographic variables such as (Age, Religion, Gravida, Education, Previous source on cord blood stem cell therapy)

- H3-There will be relationship between post test knowledge and attitude with selected demographic variables such as (Age, Religion, Gravida, Education, Previous source on cord blood stem cell therapy).

OPERATONAL DEFINITIONS

Assess

It refers to value the level of knowledge and attitude regarding cord blood stem cell therapy among antenatal mothers

Effectiveness

It refers to significant gain in knowledge and attitude as determined by significant difference between pre and post test knowledge and attitude score after structured teaching programme.

Structured teaching programme

It refers to the systematically arranged information regarding Introduction, Normal cell structure, Normal cell division, Definition, History, Types,Properties,Diseases treated by umbilical cord blood,Procedure,Nurses responsibilities of cord blood stem cells.

Knowledge

It refers to the information acquired from structure teaching programme regarding importance of stem cell therapy, In this study knowledge is classified in to three levels,

Score	level of knowledge
≤50%	Inadequate Knowledge
51 – 75%	Moderately Adequate Knowledge
>75%	Adequate Knowledge

Attitude

An attitude is a expression of Strongly Agree, Agree, Neither Agree nor Disagree, Disagree, Strongly Disagree, response of a antenatal mothers towards stem cell therapy

Classification of attitude by score

Score	Attitude Level
≤50%	Favorable attitude
51 – 75%	Moderately Favorable attitude
>75%	Unfavorable attitude

- This is for positive statements. It will be reversible for negative statements.

Antenatal Mothers

It refers to the women who all are pregnant from the time of conception to the term of pregnancy and attending antenatal checkups in selected private hospitals regularly.

Cord blood stem cell therapy

Refers to meaning of Normal cell structure, Normal cell division, Definition, History, Types,Properties,Diseases treated by umbilical cord blood, Procedure, Nurses responsibilities of cord blood stem cells as stated in structured teaching programme.

ASSUMPTIONS

The study assumes that;

1. Antenatal mothers may have inadequate knowledge and attitude regarding cord blood stem cell therapy

2. Structured teaching programme can be an effective tool for creating awareness on knowledge and attitude regarding cord blood stem cell therapy.

DELIMITATION

1. The study is delimited to antenatal mothers only
2. The study is delimited to six weeks only ,
3. The study is delimited to 30 samples only.
4. The study is delimited to mothers who are all coming to selected private hospitals only.

CHAPTER - II

REVIEW OF LITERATURE

Review of literature is a systematic search of literature to gain information about a research topic (Polit and Hungler).The literature review was based on an extensive survey of journal, books, and articles.

A literature review is body of text that aims to review the critical points of knowledge on a research and evaluate report of information found in the literature to evaluate and clarifies. The main purpose of the literature review is to convey the readers about the work already done and knowledge and ideas that have been already established on a particular topic of the research.

This chapter deals with the related literature review which aids to generate a picture of what is known and not known about a particular situation.

An extensive review of literature was done by the investigator to gain an insight into the problem, collect maximum information from systematic and critical review of scholarly publications, unpublished scholarly print materials. The logical sequence of the chapter is organized on the following sections:

PART - I: REVIEW OF RELATED LITERATURE

The reviews related to the study are carried out on the following headings,

- Literature related to knowledge and attitude regarding cord blood stem cell therapy.
- Literature related to structured teaching programme on cord blood stem cell therapy.

PART - II: **CONCEPTUAL FRAME WORK**

PART - 1

REVIEW OF LITERATURE

Literature related to knowledge and attitude regarding cord blood stem cell therapy

Hend S. Mohammed and Hend A. EL Sayed (2015) conducted a study on Knowledge and attitude of maternity nurses regarding cord blood collection and stem cells: An educational intervention . Quasi-experimental design (pre and post intervention) was utilized. A total sample of 53 staff nurses were recruited in the study. The study was conducted at two settings. The results revealed that 88.7% of nurses had poor knowledge before intervention. However, 90.6% and 81.2% of them had good knowledge immediately and after three months of intervention respectively. As well as, only 1.9% of the studied nurses had positive attitude toward cord blood collection and stem cells before intervention. Meanwhile, immediately and after three months of intervention the positive attitude changed to 66.0% and 69.8% respectively.

Tan et al., (2015) who conducted study on Knowledge and Attitude about Stem Cells and Their Application in Medicine among Nursing Students. Stem cell research has been extensively explored worldwide to enhance human health in medical setting. Nevertheless, there is currently no full understanding of the stem cell knowledge and attitude levels among student nurses in Malaysia. This study aimed to assess the level of stem cell knowledge, attitude toward stem cell application in medicine, and its association with years of education, among University Sains Malaysia (USM) undergraduate nursing students. A cross-sectional study (n = 88) was conducted using self-administered questionnaire consisted of demographic information, stem cells knowledge and attitude statements. Data was analyzed using Statistical Package Social Software 20.0. Results of the study shows that The majority of participants (92%) had moderate knowledge score about stem cells. Many students (33%) worried that stem cell application might cause a harm to humanity yet had a positive (76.1%) attitude towards its therapeutic potential (45.5%). Poor correlation between knowledge and attitude (r = 0.08) indicated that acceptance towards stem cell is not solely based on the knowledge level but also on other factors including religion and culture. Conclusion reveals that this

study suggests that various educational programs on stem cell should be implemented considering the religion, cultural, social, and behavioral determinants in the population to improve stem cell knowledge and encourage a more positive attitude towards stem cells in medicine among these nursing students.

Manal Farouk Moustafa1& Entisar Mohammad Youness (2015). Conducted a study on Nurses, Knowledge about Umbilical Cord Blood Banking and it's Barriers. Aim of the study was Researchers sought to assess nurses' knowledge regarding umbilical cord blood banking and identifying the barriers of it to be applied as their support is crucial to the success of development and functioning of cord blood banks in Women's Health Hospital, Assiut University Hospitals, Egypt. Research design used for this study was Descriptive study design was utilized in this study. Subjects and Methods are all nurses who work in Obstetrics and Gynecological department, Women's Health Hospital, Assiut University, Egypt, were included in the study between October 2014 and January 2015. Data were collected in interviews by using an interview form developed by the researchers according to the literature. All nurses were 150. Results shows that nurses' Knowledge about UCBB are lacking , inadequate knowledge represented 79.7% and they identified from their point of view that the costs of the umbilical cord blood banks, policies and procedures are barriers of conducting such new technology in their hospitals. Conclusion and Recommendations: Nurses' level of knowledge on UCBB is inadequate and this indicates the necessity of creation of educational programs and continual training with the use of UCBB. Also nurses must be equipped to know the approved standards and understanding UCBB.

Nevin Hotun Sahin and Husniye Dinç (2014) who conducted a study on pregnant women's knowledge and attitudes about stem cells and cord blood banking. Nurses need to understand stem cell research so they can enter the debate on this issue. They can become important sources of information in order to help parents understand the issues. This exploratory descriptive study was conducted in two antenatal outpatient clinics in Istanbul. The sample consisted of 334 pregnant women during routine prenatal visits. Data were collected in interviews by using an interview form developed by the

researchers according to the literature. The form included demographic characteristics of participants and 20 questions about stem cells, storing cord blood and banking and 10 independent attitude statements. The majority of the participants had a lack of knowledge about stem cells and cord blood banking and wanted more information. Before pregnancy, they received some information through the media (newspaper, Internet, television, etc.), but unintentionally. It was determined that they wanted information before becoming pregnant, more from their obstetrician but also from nurses and midwives. The majority also wanted to store their infants' cord blood and stated that they would be more likely to choose a public cord blood bank.

Kaitelidou et al., (2014) who conducted a study on Health Professionals' knowledge and attitude towards the Umbilical Cord Blood donation. The study was conducted from April 25th 2012 to May 7th 2012. The sample consisted of 109 Health Professionals from 3 provincial hospitals and 2 hospitals in Thessaloniki. In order to collect the data, a questionnaire was used. The questionnaire was designed by the researcher and a group of experts to serve the mission of the present study. From the 130 questionnaires sent, 109 were completely answered (response rate 84%). Results shows that Of those who participated to the research, 23.9% were physicians, 34.9% were midwives, and 34.8% were nurses. As far as the Health Professionals' knowledge on the Umbilical Cord Blood is concerned, only 15.6% of the participants declared to be quite or well informed on the collection methods and the usage of Umbilical Cord Blood. The vast majority of the participants (89%), declared that a well-organized program on a continual training is very essential. 93.5% of the participants declared that in the last 5 years received no or very little training regarding the collection, storing and transplantation of Umbilical Cord Blood.

Xiang Hu et al., (2013) who conducted a study on Human umbilical cord blood stem cell transplantation for the treatment of chronic spinal cord injury: Electrophysiological changes and long-term efficacy. Results shows that Stem cell transplantation can promote functional restoration following acute spinal cord injury (injury time < 3 months), but the safety and long-term efficacy of this treatment need

further exploration. In this study, 25 patients with traumatic spinal cord injury (injury time > 6 months) were treated with human umbilical cord blood stem cells *via i*ntravenous and intrathecal injection. The follow-up period was 12 months after transplantation. Results found that autonomic nerve functions were restored and the latent period of somatosensory evoked potentials was reduced. There were no severe adverse reactions in patients following stem cell transplantation. These experimental findings suggest that the transplantation of human umbilical cord blood stem cells is a safe and effective treatment for patients with traumatic spinal cord injury.

Bincy thomas (2012) who conducted a study to assess the knowledge and preference among 1,000 cord blood donors and 300 pregnant women regarding donating umbilical cord blood to a public bank or storing it in a private bank in Italy. The study results shows that, most blood donors as well as the majority of pregnant women had some general knowledge about umbilical cord blood (UCB) 89% and 93% respectively and were aware of the possibility o donating it (82% and 95%). However the level of knowledge regarding current therapeutic use is generally low, only 91 (10%) among informed blood donors and 69 (31%) among informed pregnant women gone a correct answer. The study concluded that, preference for voluntary donation both among blood donors (76%) and among pregnant women (55%). But minority of blood donors (65%) and of pregnant women (9%) would opt to store UCB for private bank.

Redid purnima (2011) who conducted a study to assess the effectiveness of structured teaching program on knowledge and attitude regarding cord blood banking. Review shows some studies that include a study conducted to explore pregnant women's awareness of cord blood stem cells and their attitude regarding banking options in France, Germany, Italy, Spain, and the UK. The data were collected by using structured questionnaire. This questionnaire consist of 29 multiple –choice questions based on: socio-demographic factors, awareness and access to information about cord blood banking, banking option preference, and donation cord blood units (CBUs) to research. Questionnaires were distributed in six maternities. In this study a total of 79% of pregnant women had little awareness of cord blood banking 58% of women had heard of

the therapeutic benefits of cord blood, of which 21% received information from midwifes and obstetricians. A total of 89% of respondents would opt to store CBUs. The first clinically documented use of cord blood stem cells was in the successful treatment of a six-year-old boy affected by Fanconi anemia in 1988. Since then, cord blood has become increasingly recognized as a source of stem cells that can be used in stem cell therapy.

Shini SA (2011), A study was conducted on effectiveness of self instructional module on the knowledge regarding placental cord blood utilization and banking among staff nurses in selected hospitals in kasargoad, by approaching one group pre- test post - test design. The sample consisted 60 staff nurses selected by convenient sampling and data was collected by using structured knowledge questionnaire. The result showed the difference suggesting that self- instructional was effective in increasing the knowledge of staff nurses (t=14.34). The mean post- test knowledge (x2=43.17) higher than the mean pre test knowledge (x1=30.40). There was association between the age and level of post test knowledge scores and in selected demographic variables.

Redid purnima (2011) who conducted a study to assess the effectiveness of structured teaching program on knowledge and attitude regarding cord blood banking. Review shows some studies that include a study conducted to explore pregnant women's awareness of cord blood stem cells and their attitude regarding banking options in France, Germany, Italy, Spain, and the UK. The data were collected by using structured questionnaire. This questionnaire consist of 29 multiple –choice questions based on: socio-demographic factors, awareness and access to information about cord blood banking, banking option preference, and donation cord blood units (CBUs) to research. Questionnaires were distributed in six maternities. In this study a total of 79% of pregnant women had little awareness of cord blood banking 58% of women had heard of the therapeutic benefits of cord blood, of which 21% received information from midwifes and obstetricians. A total of 89% of respondents would opt to store CBUs. The first clinically documented use of cord blood stem cells was in the successful treatment of a six-year-old boy affected by Fanconi anemia in 1988. Since then, cord blood has

become increasingly recognized as a source of stem cells that can be used in stem cell therapy.

Jeddian a (2013) who conducted a quality study on experiences of iranian hematopoietic stem cell transplantation recipient patients and nurses. This study explored the state of hematopoietic stem cell transplantation (hsct) recipient patients and problems experienced by them and nurse about these state and problems, in Iran. Qualitative content analysis was used for analyzing semi-structured interviews with 12 hsct recipient patients and 18 nurses. Results shows three main categories described the hsct state and problems: shadow of death, living with uncertainty, and immersion in problems. Patients treated with risk variety in continuity with probability of death. The patients lived with uncertainty. Consequently these resulted immersion in problems with four sub-categories including: (a) physical problems, (b) money worries, (c) life disturbances, and (d) emotional strain. Conclusion of the study hsct patients live in a state of limbo between life and death with multidimensional problems. Establish centers for supporting and educating of patients and their families, education of health care providers, enhancement of public knowledge about hsct along with allocating more budgets to take care of these patients can help patients for passing from this limbo.

Literature related to structured teaching programme on cord blood stem cell therapy

Walker .T et al (2012) A study was conducted to assess pregnant women's awareness of cord blood stem cells and their attitude regarding banking options among 1620 pregnancy in women. France, Germany, Italy, UK. The study result showed that, total of 79% of pregnant women had little awareness of cord blood banking 59% of women had heard of the therapeutic benefits of cord blood, of which 21% received information from midwives and obstetricians, 89% of respondents would opt to store CBUs. Among them 76% would choose to donate CBUs to a public bank to benefit any patient in need of a cord blood transplant, 12%, a private bank. The study concluded that strong preference for public banking in all five countries. Attitudes of pregnant women are not a obstacle to the rapid expansion of allogenic banking in these EU countries.

Banking does not appear to be correlated with household income. The extent of commercial marketing of cord blood banks in mass media highlights the importance for obstetric providers to play a central role in raising women's awareness early during their pregnancy with evidence based medical information about banking options.

Rosamund Scott (2012) conducted a ethnographic study that explored the views, values and practices of professional staff in relation to embryo donation for research purposes, particularly for hESC research. The study sites were three ACUs in teaching hospitals in England, which offer a mixture of National Health Service (NHS), privately, or 'self-funded' NHS treatment, and three stem cell laboratories at the universities associated with these hospitals. The clinics provide a range of assisted conception services including in vitro fertilization (IVF). Following national and local research ethics committee approvals, the study methods included clinic and laboratory observations, interviews and ethics discussion groups (EDGs) (Alderson *et al.* 2002) with staff from ACUs and linked stem cell laboratories in the UK. Staff disciplines included nursing, obstetrics and gynecology, embryology, genetics, stem cell science, counseling and clinical and research management. Nurses in two ACUs and clinicians in the third ACU reported from here (at the times when our fieldwork took place) were responsible for discussing the initial HFEA consent forms. In two clinics donations for hESC research were not being sought at the time we commenced our interviews although they had been previously.

Ruth Williams (2011) states that Neurons made from human embryonic stem cells (hESCs) can both send and receive nerve impulses when transplanted into the mouse brain, according to a report published on November in Proceedings of the National Academy of Sciences. The discovery provides some of the strongest evidence that hESC-derived neurons, which could be used to treat a variety of neurological disorders such as epilepsy, stroke, and Parkinson's disease, can fully integrate and behave like regular neurons when transplanted into the brain.

Mc Kernna D. et al (2011) a study was conducted to assess the umbilical cord blood, current status and promise for the future in India. The study results shows that,

umbilical cord blood (UCB) have been shown to be a suitable source of hematopoietic stem cells (HSCs) for hematopoietic reconstitution. UCB increases in hematopoietic transplantation, additional potential application of UCB include immune therapy, tissue engineering and regenerative medicine. UCB banking has improved with time largely due to involvement of professional organization and their published standards. However accreditations of these organizations remains voluntary, and in India three of ten banks are public with the remaining being private. The study concluded that UCB banking using the stem cell for therapeutic use.

Renece waller-wise (2011) states that Childbirth educators may be one of the main sources that an expectant family depends on to gain more knowledge about cord blood banking in order to make an informed decision. Preserving umbilical cord blood in public banks is advisable for any family; however, it is recommended that expectant families only consider private cord blood banking when they have a relative with a known disorder that is treatable by stem cell transplants. The childbirth educator is encouraged to be well versed on the topic of cord blood banking, so that as questions from class participants arise, the topic can be explored and addressed appropriately.

Randy Louis Regna (2010) states Stem cells can be pluripotent or multipotent. Pluripotent stem cells are embryonic in origin and can be isolated from embryos ranging from a few days old to 8 weeks of fetal development. Embryonic stem cells arising from a blastocyst are comprised of 50 to 150 cells and have the greatest potential to develop into 200 cell types. Adult stem cells are the only stem cells commonly used to treat human disease. Successful treatments have been demonstrated through bone marrow transplants for leukemia, lymphoma, aplastic anemia and other blood and autoimmune disorders. Clinical potential exists in the treatment of diabetes and advanced kidney cancers.

Reetu hanglem (2010) states that in 1988, umbilical cord stem cells were first used for transplantation on a 5-year old boy suffering from Fanconi's anaemia in France. The boy was cured of the disease and is still alive. Based on this and other successful transplants, doctors and researchers began to collect, freeze and store cord blood units at

cord banks throughout the world to treat several ailments and save lives. More than 45 diseases have now been treated using cord blood cells. These include malignant diseases like leukaemia, lymphoma, neuroblastoma and retinoblastoma, and several other non-malignant diseases as well. Non- malignant diseases are primarily inherited disorders of the blood and immune systems, or are genetic diseases affecting metabolism. There have been over 15,000 cord blood transplants worldwide through 2009. In the United States, more than one half of all stem cell transplants from unrelated donors in children now use cord blood. In Japan, this is true for adults as well. This program has provided cord blood units for transplantation to over 3,500 recipients to date, about one fourth of all cord blood transplants from unrelated donors. In India, there are approximately 72000 births daily, which results in discarding 72000 umbilical cords a day. The storage of stem cell rich blood derived from these umbilical cords can prove to be the best possible insurance against life threatening diseases.[8.]Indians have high incidence of diseases like Diabetes and Heart ailments, in the treatment of which cord blood can be a godsend, The potential of these stem cells are far higher because they prevent Graft versus Host Disease.

Cedar SH.(2009) states that Nurses and midwives are part of health care in all the stages of our lives from preconception to death. Recent scientific advances have introduced new techniques of screening and diagnosis linked to stem cell isolation and therapies. These could affect us at any age and therefore nurses will be involved as careers and patients advocates for these techniques. In this article stem cell techniques and therapies are outlined, as well as some of the ethical challenges faced by various nursing groups, whether in adult, learning difficulties, mental health, paediatric, primary care, public health or health visiting areas. Nurses represent all parties in these therapies and act as advocates for every patient group. They need to act in an interprofessional environment to promote the best interests of all their clients, both clinically and ethically.

Gregory Hale, (2009) conducted a study on Haploidentical Stem Cell Transplant for Treatment Refractory Hematological Malignancies haploidentical transplant has proven curative in many patients, this procedure has been hindered by significant complications, primarily regimen-related toxicity including graft versus host disease

(GVHD), and infection due to delayed immune reconstitution. These can, in part, be due to certain white blood cells in the graft called T cells. GVHD happens when the donor T cells recognize the patient's (the host) body tissues are different and attack these cells. Although too many T cells increase the possibility of GVHD, too few may cause the recipient's immune system to reconstitute slowly or the graft to fail to grow, leaving the patient at high-risk for infection. However, the presence of T cells in the graft may offer a positive effect called graft versus malignancy or GVM. With GVM, the donor T cells recognize the patient's malignant cells as diseased and, in turn, attack these diseased cells. In this study, patients were given a haploidentical graft engineered to with specific T cell parameter values using the CliniMACS system. A reduced intensity, preparative regimen was used to reduce regimen-related toxicity and mortality. The primary goal of this study is to evaluate overall survival in those who receive this study treatment.

PART II

CONCEPTUAL FRAMEWORK

The word conceptual framework represents a less formal attempt at organizing a phenomenon. Conceptual model deals with concepts that are used as building blocks and provide a conceptual perspective regarding inter related phenomena which are closely structured.

The central focus of Imogene King's framework is man as a dynamic human being whose perception of objects, person and events influence his behavior, social interaction, and health. Imogene King's conceptual frame work includes three interacting system which each system having its own distinct group of concepts and characteristics. These systems include personal system, interpersonal system and social system. King's basic assumption maintained that nursing is a process that involves caring for human beings which health being the ultimate goal (Torres,1986) the three system that constitute King's conceptual framework provide the basis for development of her theory of goal attainment.

The personal system refers to the individual. The concept within the personal system and fundamental in understanding human beings are perception, self, body image, growth and development, time and space. Imogene King viewed perception as the most important variables because perception influences behavior. King summarized the connections among the concepts in the following statement. An individual's perception of self, body image, time and space influence the way he or she responds to persons, objects and events in his or her life. As individuals grow and develop through the life span, experiences with changes in structure and function of their bodies over time influence their perception of self, interpersonal systems involve individuals interacting with one another.

Imogene king (1981) stated, although personal and social systems influence the quality of care, the major elements in a theory of goal attainment are discovered in the interpersonal system in which two people, who are usually strangers, come together 19 in

a health care organization to help and to be helped to maintain a state of health that permits functioning in roles. King believed that interactions between the nurse and mothers results in goal attainment.

This theory is based on the concepts of the personal and interpersonal systems including interaction, perception, transaction and action. A basic theory for conceptual framework, which is aimed to assess the effectiveness of structured teaching programme on knowledge and attitude regarding stem cell therapy among antenatal mothers. The major concepts are described as follows.

1. Perception

Perception is the person's representation of the reality. It influences all other behavior of a person and it is more subjective and unique to each person. The researcher perceives that the antenatal mothers have inadequate of knowledge and poor attitude regarding cord blood stem cell therapy.

2. Judgement

The judgment is a decision made by the researcher and the antenatal mothers. Here the researcher judges that teaching the antenatal mothers regarding cord blood stem cell therapy.

3. **Action**

It refers to the changes that have to be achieved. The researcher's action is planned and motivated to conduct structured teaching programme on knowledge and attitude on cord blood stem cell therapy among antenatal mothers.

4. Mutual goal setting

Here the researcher educate structured teaching programme on cord blood stem cell therapy and the antenatal mothers are actively involved in this programme.

5. **Reaction**

Reaction means decision to act. In this study the researcher developed a tool to assess the existing knowledge and attitude regarding cord blood stem cell therapy among antenatal mothers.

6. **Interaction**

Interaction is a process of perception and communication between person to person, represented by verbal and nonverbal behaviors that are goal directed. Here the researchers gave pretest conducted structured teaching programme on knowledge and attitude on cord blood stem cell therapy among antenatal mothers and post test.

7. **Transaction**

The transaction is purposeful interaction that leads to goal attainment, between the researcher and the antenatal mothers. Here the researcher assesses the effectiveness of structured teaching programme on knowledge and attitude regarding cord blood stem cell therapy by post test by using the same tool.

Positive outcome is adequate knowledge and attitude regarding cord blood stem cell therapy among antenatal mothers which has to be enhanced further. Negative outcome is moderate and inadequate knowledge and attitude regarding cord blood stem cell therapy among antenatal mothers.

King's conceptual framework provides a useful structure for the researcher, in educating antenatal mothers regarding cord blood stem cell therapy. This theory also provides direction for nursing practice by emphasizing the process of multidisciplinary collaboration, communication, interaction, transaction and the use of critical thinking. Thus the researcher adopted this model to assess the effectiveness of structured teaching programme on knowledge and attitude regarding cord blood stem cell therapy among antenatal mothers.

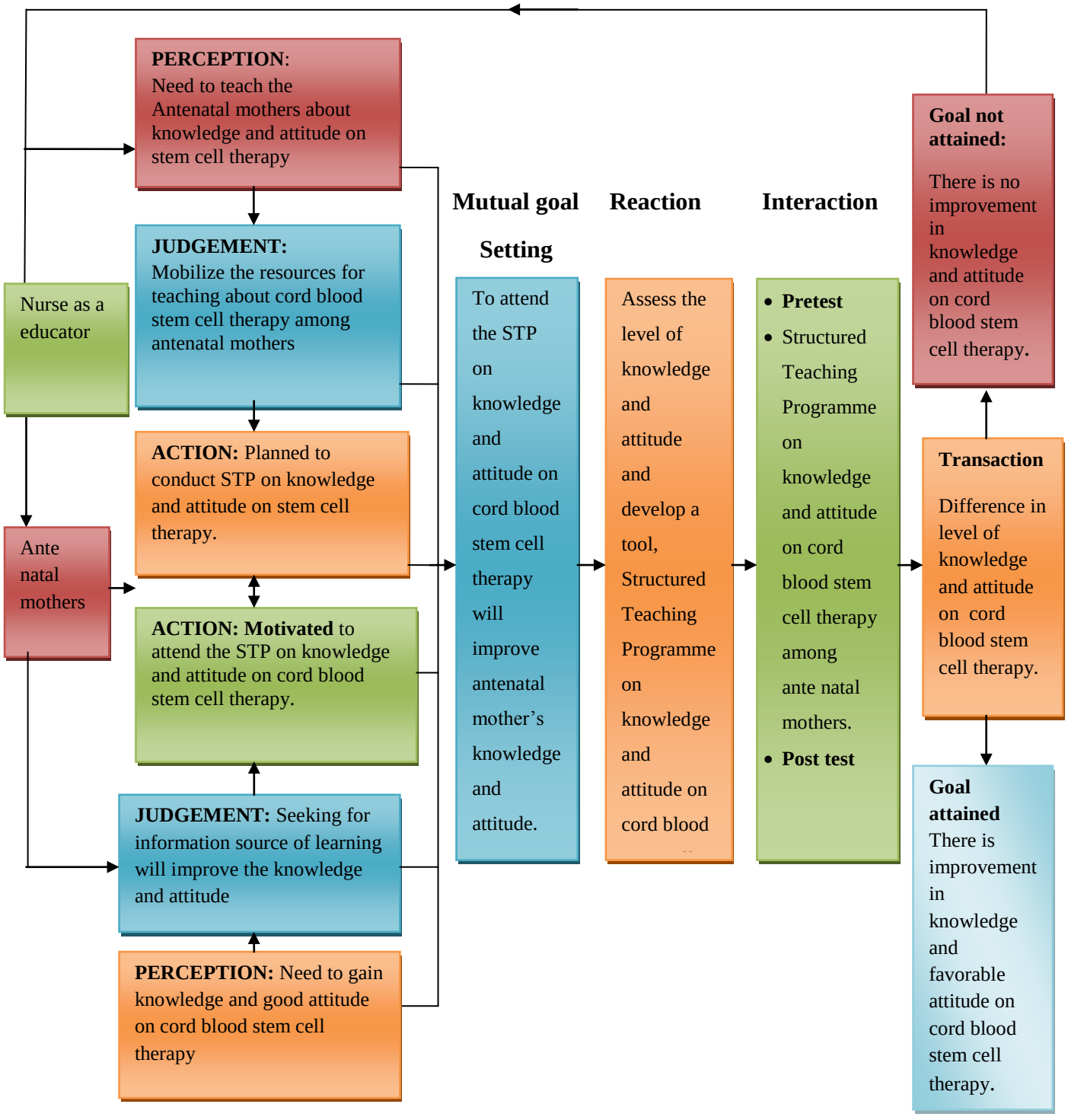

Fig. 1 Conceptual Framework Based on Modified Imogene King's Goal Attainment Model

CHAPTER - III

RESEARCH METHODOLOGY

Methodology of research organizes all the components of study in a way that most likely we need to valid answers for the problems that have been posted.

(Burns and Groove, 2008)

This chapter deals with the methodology adopted for the study. It includes the research approach, research design, variables, setting, population, sample and criteria for selection of the sample, sample size, sampling technique, development and description of the tool, content validity, pilot study and reliability of the tool, data collection procedure and plan for data analysis.

RESEARCH APPROACH:

A evaluative research approach has been used for the study.

RESEARCH DESIGN:

The research design used in this study was pre experimental one group pretest post test research design.

The schematic representation follows

Group	**Pre-test** (0_1)	**Intervention** (×)	**Post-test** (0_2)
Antenatal mothers	Assessment of pre test level of knowledge and attitude regarding cord blood stem cell therapy.	Structured teaching programme On knowledge and attitude regarding cord blood stem cell therapy.	Assessment of post test level of knowledge and attitude regarding cord blood stem cell therapy.

VARIABLES

Dependent variable

The dependent variables in this study are knowledge and attitude.

Independent variable

The independent variable in this study is structured teaching programme on cord blood stem cell therapy.

Extraneous Variable

The extraneous variables in this study are educational status, occupation, income.

SETTING

The research setting was Jayaa hospital and Suguna hospital, Tiruchengode, Namakkal district, Each hospital consist of 100 bedded hospitals.

POPULATION

Target Population

The target population for this study was antenatal mothers.

Accessible Population

Antenatal mothers in Jayaa hospital and Suguna hospital at Tiruchengode.

SAMPLE

The sample for this study included antenatal mothers who meet inclusive criteria.

SAMPLE SIZE

It consists of 30 antenatal mothers. Samples were selected from Jayaa and Suguna hospitals, Tiruchengode.

CRIETERIA FOR SAMPLE SELECTION

Inclusion criteria

The study include

- Antenatal Mothers who attend Outpatient department in selected private hospitals at Namakkal district.
- Mothers who are willing to participate in the study
- Mothers who are available at the time of data collection
- Mothers parents are able to read and write.
- Mothers who are educated.

Exclusion criteria

The study excludes,

- Mothers who are all having any hearing and visual problem.
- Mothers who already registered for cord blood stem cell therapy.

SAMPLING TECHNIQUE

Thirty (30) antenatal mothers were selected by non probability convenient sampling technique from Jayaa and Suguna hospitals, Tiruchengode.

DEVELOPMENT AND DESCRIPTION OF TOOL

The tool is a vehicle that could obtain data pertinent to the study and at the same time adds to the body of general knowledge in the discipline. Data collection tools were used by the researcher to observe or measure the key. Selection and development of the tool was done based on the objectives of the study. After the review of related literatures the structured knowledge and attitude interview questionnaire regarding cord blood stem cell therapy among antenatal mothers was developed by the investigator. The developed tool was refined and validated by the subject experts and guide.

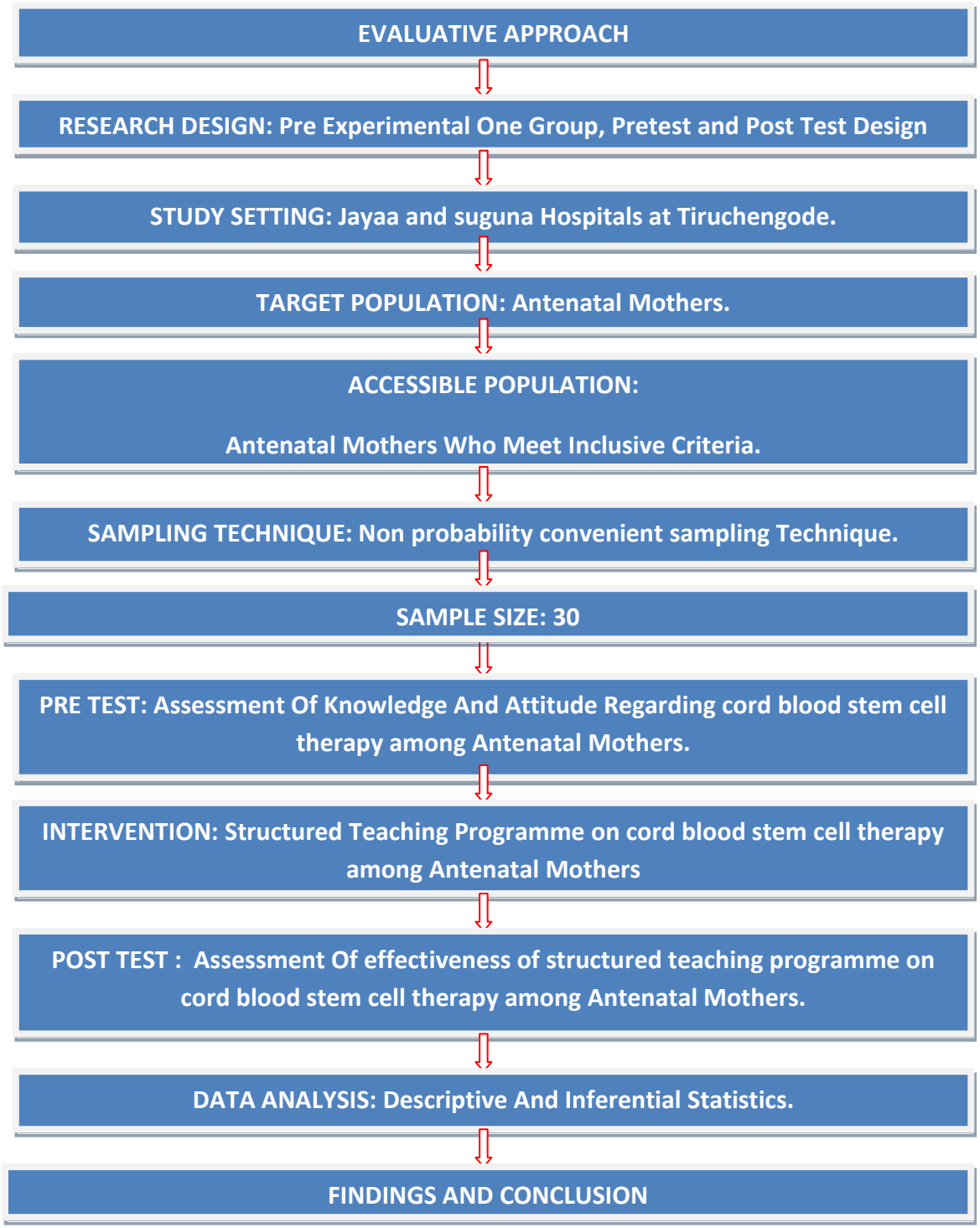

Fig: 2 SCHEMATIC REPRESENTATION OF RESEARCH METHODOLOGY

DATA COLLECTION TOOL

The tool consists of three sections

SECTION – A

It deals with demographic variables,which includes Age,Religion,Gravida, Education,Occupation,Types of family,Previous source on stem cell therapy.

SECTION – B

This section consists of structured questionnaire to assess the knowledge among antenatal mothers. It consists of 40 multiple choice questions. Scoring was done for each items. In each question there was only one right choice. Each correct answer was given a score of one and wrong answer carries score of zero. Knowledge was measured in terms of knowledge score. The total scores of knowledge were 40.

Scoring key each correct answer carries – 1 mark

Each incorrect answer carries – 0 mark,

and it is classified as

Score	**level of knowledge**
≤50%	Inadequate Knowledge
51 – 75%	Moderately Adequate Knowledge
>75%	Adequate Knowledge

SECTION - C

A likert attitude scale was prepared by the investigator to assess the attitude of stem cell therapy among antenatal mothers. It consists of 20 statements that are 16 positive statement and 4 negative statements. Each statement was scored in the following manner.

Scoring key

Each item has 5 options such as Strongly Agree, Agree, Neither Agree nor Disagree, Disagree, Strongly Disagree.

The scores for those who strongly agree 5 points, 4 points for agree, 3 points for neither Agree nor Disagree, 2 points for disagree, 1 point for Strongly Disagree.

- This is for positive statements. It will be reversible for negative statements.

Score	**Attitude Level**
≤50%	Favorable attitude
51 – 75%	Moderately Favorable attitude
>75%	Unfavorable attitude

INTERVENTION

Structured teaching programme on cord blood stem cell therapy among antenatal mothers.

CONTENT VALIDITY

Polit and hungler (1999) stated that it is concerned that sampling adequacy of items for the construct that is being measured. Content validity is relevant for both affective measures and cognitive measures. The content validity of an instrument is necessarily based on judgment. The content validity of tool was done by 3 nursing experts, 2 obstetricians and gynecologist. Experts were asked to give their opinion and suggestions about the concept of the tool. The modifications recommended by the experts were incorporated in the final preparation of the questionnaire by the investigator. The tool was translated into Tamil by language experts.

RELIABILITY

Polit and Hungler (1999) state that one important characteristics of measuring tool is its reliability, which refers to the degree of consistency or accuracy with which an instrument measures an attribute. The structured interview questionnaire was tried on 30 antenatal mothers selected in Jayaa and Suguna hospitals Tiruchengode at Namakkal district. Reliability was found out by split half method using spearman Brown's formula. The reliability of the knowledge questionnaire was found to be r = 0.83 and for attitude r= 0.87 Hence the tool was found to be statistically reliable for the study.

PILOT STUDY

Pilot study is a trial run for major study to test the reliability, practicability, appropriateness and flexibility of the tool for the study. The investigator conducted a pilot study in the month of January with 5 samples selected in Raji hospital Tiruchengode at Namakkal district. The data was analyzed by using descriptive statistics that is mean, percentage and standard deviation of the variables and were calculated and compared. Results revealed that there was a positive correlation. The tool was found feasible and practicable. The investigator proceeded for the main study. No modification was done in the methodology and tool.

PROCEDURE FOR DATA COLLECTION

The main study was conducted after obtaining formal permission from the principal,Arvinth College of Nursing, Ethical Committee clearance and written permission was obtained from the doctors of Jayaa and Suguna hospital,Tiruchengode, Namakkal district.

A total of 30 Antenatal mothers who fulfilled the inclusive criteria were selected using non probability convenient sampling technique. The data was collected during the month of February 2016.

A brief introduction of self explanation on the purpose of the study was given. The written consent was obtained from the antenatal mothers.

The investigator collected socio demographic data and assessed their knowledge and attitude on cord blood stem cell therapy on first day and structured teaching programme on cord blood stem cell therapy among antenatal mothers was given on the same day for 45 minutes to 1 hour. Post test knowledge and attitude was assessed on 8th day by using same tool as used for the pre test.

No of samples	Date of Pre test	Date of post test
7	03/02/2016	10/02/2016
4	04/02/2016	11/02/2016
3	05/02/2016	12/02/2016
6	06/02/2016	13/02/2016
5	07/02/2016	14/02/2016
5	08/02/2016	15/02/2016

PLAN FOR DATA ANALYSIS

- The data obtained were analyzed using both descriptive and inferential statistics.
- Descriptive statistics used to find out frequency, percentage, mean and standard deviation.
- "t" test was used for comparing the knowledge and attitude.
- Correlation was used to find out the relationship between knowledge and attitude among ante natal mothers.
- Chi-square test was used to find out the association of demographic variable with knowledge and attitude.

CHAPTER – IV

DATA ANALYSIS AND INTERPRETATION

This chapter deals with the analysis and interpretation of data collected from 30 antenatal mothers in selected private hospitals at Namakkal District, to assess the effectiveness of Structured Teaching Programme on knowledge and attitude regarding cord blood stem cell therapy among antenatal mothers. The data collected for the study was grouped and analyzed as per the objectives set for the study. The findings based on the descriptive and inferential statistical analysis are presented under the following sections.

ORGANIZATION OF DATA

The findings of the study were grouped and analyzed under the following sessions.

Section A : Description of the demographic variables.

Section B : Assessment of pretest and post test level of knowledge and attitude regarding cord blood stem cell therapy among antenatal mothers.

Section C : Effectiveness of structured teaching programme on knowledge and attitude regarding cord blood stem cell therapy among antenatal mothers.

Section D : Relationship between post test knowledge and attitude scores regarding cord blood stem cell therapy among antenatal mothers.

Section E : Association of post test level of knowledge and attitude regarding cord blood stem cell therapy among antenatal mothers with selected demographic variables.

SECTION A: DESCRIPTION OF THE DEMOGRAPHIC VARIABLES.

Table 1: Frequency and percentage distribution of demographic variables of antenatal mothers

n = 30

Demographic Variables	No.	%
Age of the mother		
21 – 25	10	33.33
26 – 30	15	50.00
31 – 35	3	10.00
36 – 40	2	6.67
Religion		
Hindu	25	83.33
Muslim	3	10.00
Christian	2	6.67
Others	0	0.00
Gravida of the mother		
Gravida one	16	53.33
Gravida two	14	46.67
Multigravida	0	0.00
Education		
Secondary school education	1	3.33
Higher secondary education	9	30.00
Graduate	20	66.67
Occupation		
Homemaker	5	16.67
Government employee	6	20.00
Private employee	13	43.33
Self - employee business	6	20.00
Type of family		
Nuclear family	13	43.33
Joint family	17	56.67
Previous knowledge		
Mass media	5	16.67
Health workers	0	0.00
Peer group	0	0.00
None	25	83.33

The table 1 shows that majority 15(50%) of antenatal mothers were in the age group of 26 – 30 years, 25983.33%) were Hindus, 16(53.33%) were gravida one, 20(66.67%) were graduates, 13(43.33%) were private employee, 17(56.67%) belonged to joint family and 25(83.33%) had no previous knowledge on cord blood stem cell therapy.

SECTION B: ASSESSMENT OF PRETEST AND POST TEST LEVEL OF KNOWLEDGE AND ATTITUDE REGARDING CORD BLOOD STEM CELL THERAPY AMONG ANTENATAL MOTHERS.

Table 2: Frequency and percentage distribution of pretest and post test level of knowledge regarding cord blood stem cell therapy among antenatal mothers.

n = 30

Knowledge	Inadequate (≤50%)		Moderately Adequate (51 – 75%)		Adequate (>75%)	
	No.	%	No.	%	No.	%
Pretest	30	100.0	0	0	0	0
Post Test	0	0	7	23.33	23	76.67

The table 2 shows that in the pretest, almost all 30(100%) had inadequate knowledge whereas in the post test after imparting structured teaching programme majority 23(76.67%) had adequate knowledge and only 7(23.33%) had moderately adequate knowledge regarding cord blood stem cell therapy among antenatal mothers.

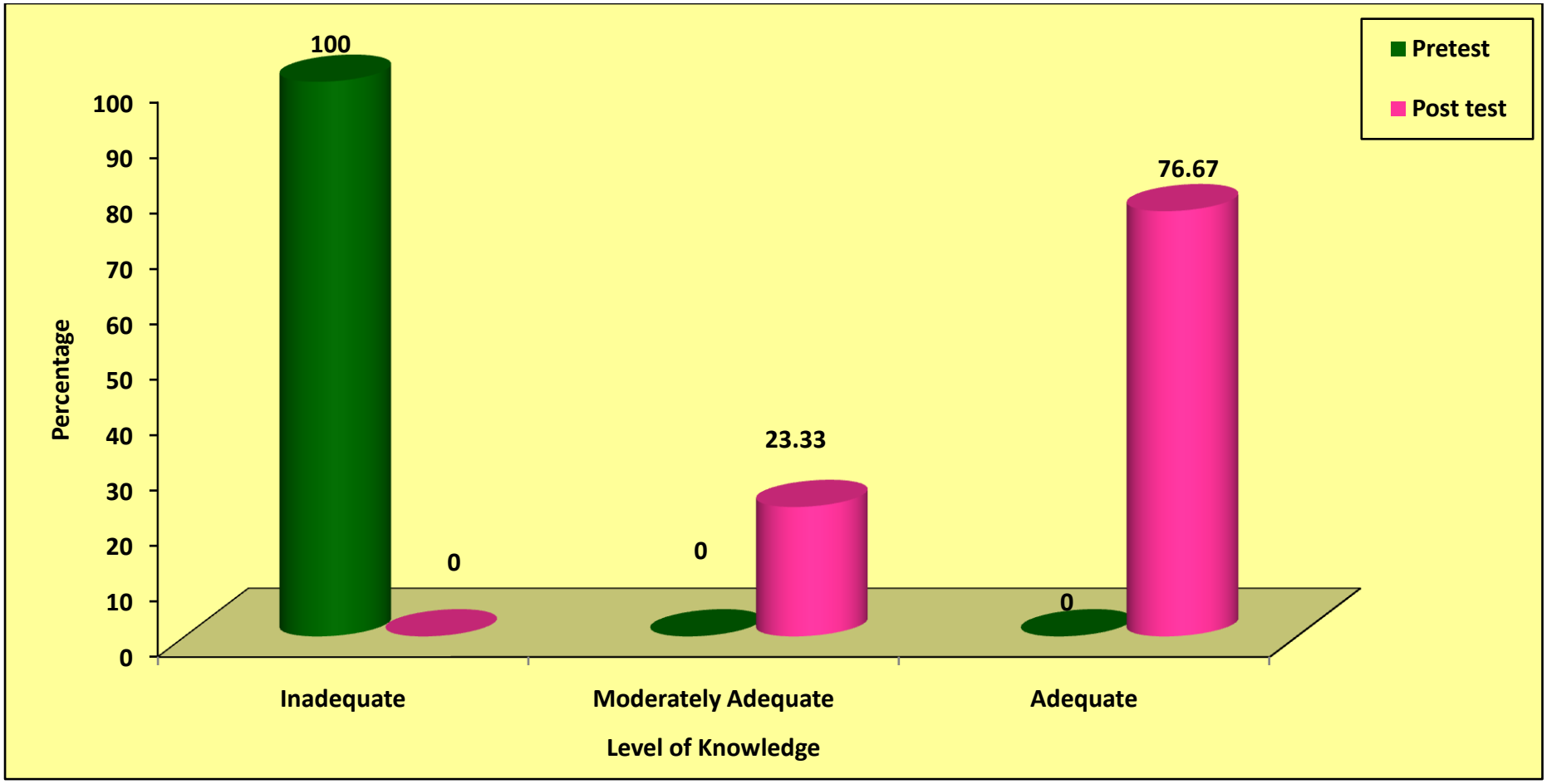

Fig :3 Percentage distribution of pretest and post test level of knowledge regarding cord blood stem cell therapy among antenatal mothers

Table 3: Frequency and percentage distribution of pretest and post test level of attitude regarding cord blood stem cell therapy among antenatal mothers.

n = 30

Attitude	Unfavourable (<50%)		Moderately Favourable (50 – 75%)		Favourable (>75%)	
	No.	%	No.	%	No.	%
Pretest	25	83.33	5	16.67	0	0
Post Test	3	10.0	6	20.0	21	70.0

The table 3 shows that in the pretest, almost all 25(83.33%) had unfavourable attitude and 5(16.67%) had moderately favourable attitude whereas in the post test after imparting structured teaching programme majority 21(70%) had favourable attitude, 6(20%) had moderately favourable attitude and 3(10%) had unfavourable attitude regarding cord blood stem cell therapy among antenatal mothers.

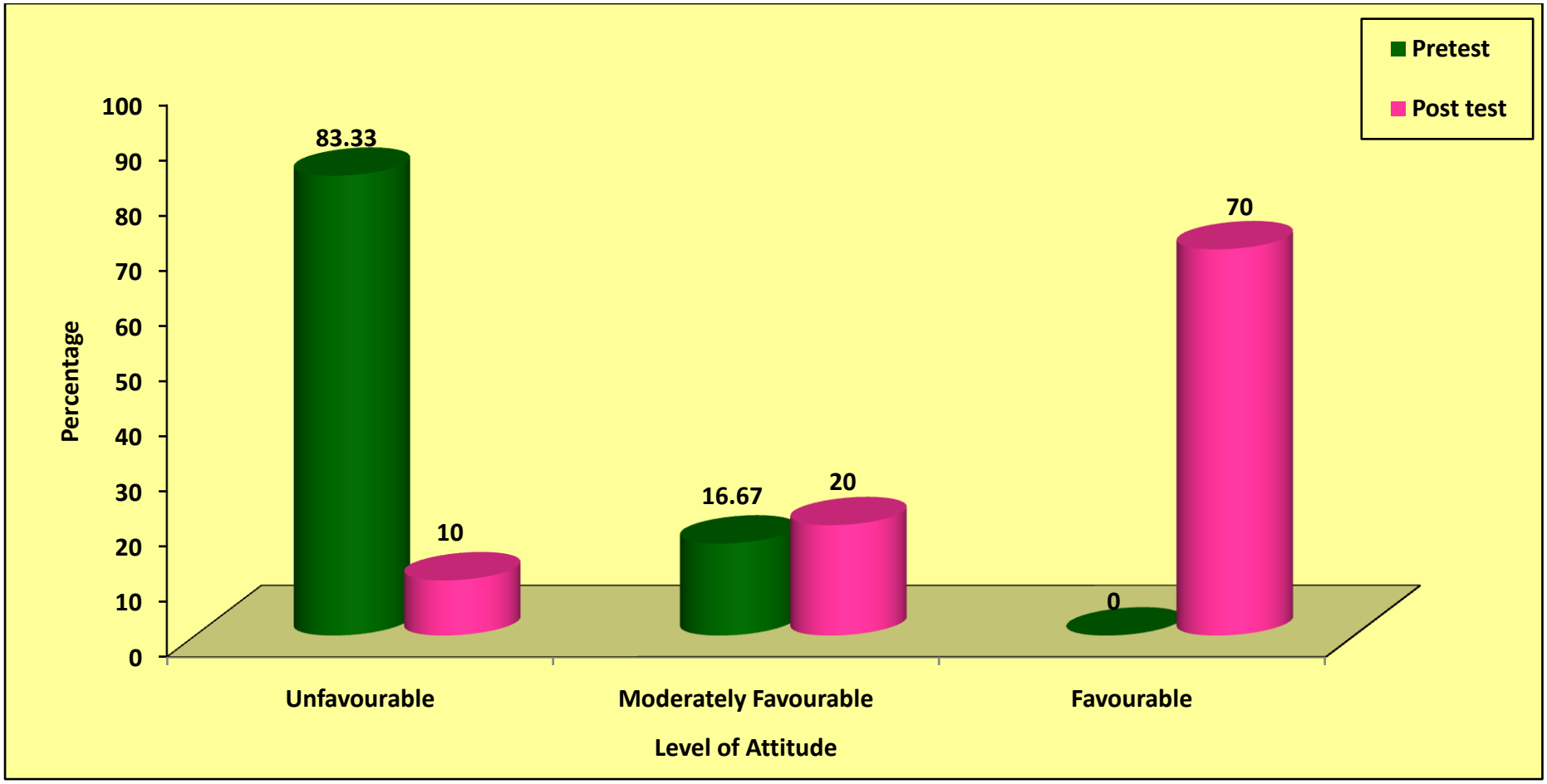

Fig : 4 Percentage distribution of pretest and post test level of attitude regarding cord blood stem cell therapy among antenatal mothers

SECTION C: EFFECTIVENESS OF STRUCTURED TEACHING PROGRAMME ON KNOWLEDGE AND ATTITUDE REGARDING CORD BLOOD STEM CELL THERAPY AMONG ANTENATAL MOTHERS.

Table 4: Comparison of pretest and post test knowledge scores regarding cord blood stem cell therapy among antenatal mothers.

n = 30

Knowledge	Mean	S.D	Paired 't' Value
Pretest	11.50	2.70	**t = 57.742**
Post Test	33.06	3.93	**p = 0.000, S*** **

***p<0.001, S – Significant

The table 4 shows that in the pretest, the mean score of knowledge was 11.50 with S.D 2.70 whereas in the post test the mean score of knowledge was 33.06 with S.D 3.93. The calculated paired 't' value of t = 57.742 was found to statistically significant at p<0.001 level. This clearly shows that the structured teaching programme imparted to antenatal mothers had significant improvement in the post test level of knowledge regarding cord blood stem cell therapy.

Table 5: Comparison of pretest and post test attitude scores regarding cord blood stem cell therapy among antenatal mothers.

n = 30

Attitude	Mean	S.D	Paired 't' Value
Pretest	40.26	11.98	**t = 18.758**
Post Test	78.40	14.31	**p = 0.000, S*** **

***p<0.001, S – Significant

The table 5 shows that in the pretest, the mean score of attitude was 40.26 with S.D 11.98 whereas in the post test the mean score of knowledge was 78.40 with S.D 14.31. The calculated paired 't' value of t = 29.885 was found to statistically significant at p<0.001 level. This clearly shows that the structured teaching programme imparted to antenatal mothers had significant improvement in the post test level of attitude regarding cord blood stem cell therapy.

SECTION D: RELATIONSHIP BETWEEN POST TEST KNOWLEDGE AND ATTITUDE SCORES REGARDING CORD BLOOD STEM CELL THERAPY AMONG ANTENATAL MOTHERS.

Table 6: Correlation between post test knowledge and attitude scores regarding cord blood stem cell therapy among antenatal mothers.

n = 30

Variables	Mean	S.D	'r' Value
Knowledge	33.06	3.93	**r = 0.715**
Attitude	78.40	14.31	**p = 0.000, S****

**p<0.01, S – Significant

The table 6 shows that the post mean score of knowledge was 33.06 with S.D 3.93 and the posttest attitude score was 78.40 with S.D 14.31. The calculated Karl Pearson's Correlation value of r = 0.715 shows a positive correlation and it was found to be statistically significant at p<0.01 level. This clearly indicates that when the knowledge regarding cord blood stem cell therapy among antenatal mothers increases their attitude level also increases.

SECTION E: ASSOCIATION OF POST TEST LEVEL OF KNOWLEDGE AND ATTITUDE REGARDING CORD BLOOD STEM CELL THERAPY AMONG ANTENATAL MOTHERS WITH SELECTED DEMOGRAPHIC VARIABLES.

Table 7: Association of post test level of knowledge regarding cord blood stem cell therapy among antenatal mothers with selected demographic variables. n = 30

Demographic Variables	Moderately Adequate (51 – 75%)		Adequate (>75%)		Chi-Square Value
	No.	%	No.	%	
Age of the mother					χ^2=1.118 d.f=3 p = 0.773 N.S
21 – 25	3	10.0	7	23.3	
26 – 30	3	10.0	12	40.0	
31 – 35	1	3.3	2	6.7	
36 – 40	0	0	2	6.7	
Religion					χ^2=0.783 d.f=2 p = 0.676 N.S
Hindu	0	0	19	63.3	
Muslim	1	3.3	2	6.7	
Christian	0	0	2	6.7	
Others	-	-	-	-	
Education					χ^2=0.932 d.f=2 p = 0.628 N.S
Secondary school education	0	0	1	3.3	
Higher secondary education	3	10.0	6	20.0	
Graduate	4	13.3	16	53.3	
Occupation					χ^2=0.932 d.f=3 p = 0.818 N.S
Homemaker	2	6.7	3	10.0	
Government employee	1	3.3	4	13.3	
Private employee	3	10.0	12	40.0	
Self - employee business	1	3.3	4	13.3	
Type of family					χ^2=0.001 d.f=1 p = 0.977 N.S
Nuclear family	3	10.0	10	33.3	
Joint family	4	13.3	13	43.3	
Previous knowledge					χ^2=0.932 d.f=1 p = 0.334 N.S
Mass media	2	6.7	3	10.0	
Health workers	-	-	-	-	
Peer group	-	-	-	-	
None	5	16.7	20	66.7	

*p<0.05, S – Significant, N.S – Not Significant

The table 7 shows that the demographic variable gravida had shown statistically significant association with post test level of knowledge regarding cord blood stem cell therapy among antenatal mothers at $p<0.05$ level and the other demographic variables had not shown statistically significant association with post test level of knowledge regarding cord blood stem cell therapy among antenatal mothers.

Table 8: Association of post test level of attitude regarding cord blood stem cell therapy among antenatal mothers with selected demographic variables.

n = 30

Demographic Variables	Unfavourable (≤50%)		Moderately Favourable (50 – 75%)		Favourable (>75%)		Chi-Square Value
	No.	%	No.	%	No.	%	
Age of the mother							χ^2=2.595 d.f=6 p = 0.858 N.S
21 – 25	1	3.3	3	10.0	6	20.0	
26 – 30	2	6.7	2	6.7	11	36.7	
31 – 35	0	0	1	3.3	2	6.7	
36 – 40	0	0	0	0	2	6.7	
Religion							χ^2=1.543 d.f=4 p = 0.819 N.S
Hindu	3	10.0	5	16.7	17	56.7	
Muslim	0	0	1	3.3	2	6.7	
Christian	0	0	0	0	2	6.7	
Others	-	-	-	-	-	-	
Education							χ^2=0.476 d.f=4 p = 0.976 N.S
Secondary school education	0	0	0	0	1	3.3	
Higher secondary education	1	3.3	2	6.7	6	20.0	
Graduate	2	6.7	4	13.3	14	46.7	
Occupation							χ^2=7.436 d.f=6 p = 0.282 N.S
Homemaker	1	3.3	2	6.7	2	6.7	
Government employee	1	3.3	0	0	5	16.7	
Private employee	0	0	4	13.3	9	30.0	
Self - employee business	1	3.3	0	0	5	16.7	
Type of family							χ^2=1.008 d.f=2 p = 0.604 N.S
Nuclear family	2	6.7	3	10.0	8	26.7	
Joint family	1	3.3	3	10.0	13	43.3	
Previous knowledge							χ^2=1.886 d.f=2 p = 0.390 N.S
Mass media	0	0	2	6.7	3	10.0	
Health workers	-	-	-	-	-	-	
Peer group	-	-	-	-	-	-	
None	3	10.0	4	13.3	18	60.0	

N.S – Not Significant

The table 8 shows that none of the demographic variables had shown statistically significant association with post test level of attitude regarding cord blood stem cell therapy among antenatal mothers.

CHAPTER - V

DISCUSSION

This chapter discusses in detail the findings of the study derived from the statistical analysis and its pertinence to the objectives of the study and further discussion exemplify these objectives were satisfied by the study.The purpose of the study was to assess the effectiveness of structured teaching programme on knowledge and attitude regarding cord blood stem cell therapy among antenatal mothers. The findings based on the descriptive and inferential statistical analysis are presented under the following sections.

Description of the demographic variable among antenatal mothers with cord blood stem cell therapy

With regard to the demographic variables majority 15(50%) of antenatal mothers were in the age group of 26 – 30 years, 25983.33%) were Hindus, 16(53.33%) were gravida one, 20(66.67%) were graduates, 13(43.33%) were private employee, 17(56.67%) belonged to joint family and 25(83.33%) had no previous knowledge on cord blood stem cell therapy.

The first objective was to determine the pretest and posttest level of knowledge and attitude regarding cord blood stem cell therapy among antenatal mothers

Findings of pretest, almost all 30(100%) had inadequate knowledge whereas in the post test after imparting structured teaching programme majority 23(76.67%) had adequate knowledge and only 7(23.33%) had moderately adequate knowledge regarding cord blood stem cell therapy among antenatal mothers.

The finding also revealed that in the pretest, almost all 25(83.33%) had unfavourable attitude and 5(16.67%) had moderately favourable attitude whereas in the post test after imparting structured teaching programme majority 21(70%) had favourable

attitude, 6(20%) had moderately favourable attitude and 3(10%) had unfavourable attitude regarding cord blood stem cell therapy among antenatal mothers.

The second objective was to assess the effectiveness of structured teaching programme on knowledge and attitude regarding cord blood stem cell therapy among antenatal mothers.

The comparison tables showed that in the pretest, the mean score of knowledge was 11.50 with S.D 2.70 whereas in the post test the mean score of knowledge was 33.06 with S.D 3.93. The calculated paired 't' value of t = 57.742 was found to statistically significant at $p<0.001$ level. This clearly shows that the structured teaching programme imparted to antenatal mothers had significant improvement in the post test level of knowledge regarding cord blood stem cell therapy.

The table 5 shows that in the pretest, the mean score of attitude was 40.26 with S.D 11.98 whereas in the post test the mean score of knowledge was 78.40 with S.D 14.31. The calculated paired 't' value of t = 29.885 was found to statistically significant at $p<0.001$ level. This clearly shows that the structured teaching programme imparted to antenatal mothers had significant improvement in the post test level of attitude regarding cord blood stem cell therapy.

Hence the hypothesis H1- There will be significant difference between pre and post test knowledge and attitude score regarding cord blood stem cell therapy among antenatal mothers.

The third objectives was to relationship between post test knowledge and attitude scores regarding cord blood stem cell therapy among antenatal mothers.

The table 6 shows that the post mean score of knowledge was 33.06 with S.D 3.93 and the posttest attitude score was 78.40 with S.D 14.31. The calculated Karl Pearson's Correlation value of r = 0.715 shows a positive correlation and it was found to be statistically significant at $p<0.01$ level. This clearly indicates that when the knowledge

regarding cord blood stem cell therapy among antenatal mothers increases their attitude level also increases.

Hence the hypothesis H2- There will be significant association between post test knowledge and attitude score with selected demographic variables such as (Age, Religion, Gravida, Education, Previous source on cord blood stem cell therapy)

The fourth objective was to associate the post test level of knowledge and attitude regarding cord blood stem cell therapy among antenatal mothers with selected demographic variables.

Table 7 shows that all demographic variables had not shown statistically significant association with post test level of knowledge regarding cord blood stem cell therapy among antenatal mothers at $p<0.05$ level.

The table 8 shows that none of the demographic variables had shown statistically significant association with post test level of attitude regarding cord blood stem cell therapy among antenatal mothers.

Hence the hypothesis H3-There will be relationship between post test knowledge and attitude with selected demographic variables such as (Age, Religion, Gravida, Education, Previous source on cord blood stem cell therapy).

CHAPTER - VI

SUMMARY, CONCLUSION, NURSING IMPLICATIONS, RECOMMENDATIONS AND LIMITATIONS

This chapter presents the summary, conclusion, nursing implications, recommendations and limitations of the study based on objectives selected.

SUMMARY

The umbilical cord is one of the richest sources of pure young stem cells in the human body. Stem cells are the very foundation of the human body. Every part of our body including blood, bone, skin and muscles are formed from master cells known as stem cells. Cord blood stem cells are master cells of our body used in the treatment of nearly 80 diseases, including wide range of cancers, genetic diseases and blood transplant. When a transplant is successful a healthy new immune system has been treated.Umblical cord stem cells when preserve under cryogenic conditions have no expiration date, thereby providing life time benefit.

The objectives of the study were

1. To assess the pre test knowledge and attitude regarding cord blood stem cell therapy among antenatal mothers.
2. To assess the effectiveness of structured teaching programme on cord blood stem cell therapy among antenatal mothers.
3. To correlate knowledge and attitude regarding cord blood stem cell therapy among antenatal mothers
4. To find the association between post test knowledge and attitude regarding stem cell therapy among antenatal mothers with their selected demographic cell variables such as Age ,Religion, Gravida, Education, Previous source on cord blood stem therapy.

The study was based on assumptions that

The study assumes that;

1. Antenatal mothers may have inadequate knowledge and attitude regarding cord blood stem cell therapy
2. Structured teaching programme can be an effective tool for creating awareness on knowledge and attitude regarding cord blood stem cell therapy.

The hypothesis formulated were

- H1- There will be significant difference between pre and post test knowledge and attitude score regarding cord blood stem cell therapy among antenatal mother.

- H2- There will be significant association between post test knowledge and attitude score with selected demographic variables such as (Age, Religion, Gravida, Education, Previous source on cord blood stem cell therapy)

- H3-There will be relationship between post test knowledge and attitude with selected demographic variables such as (Age, Religion, Gravida, Education, Previous source on cord blood stem cell therapy).

The review of literature was derived from primary and secondary sources along with professional experience and experts guidance from the field of gynecological and obstetrical nursing provided a comprehensive frame work for the selection of problem and for achieving the objectives of the study. It also strengthened the ideas for conceptual framework, aided to design the methodology and develop the tool for data collection.

The conceptual framework for the study was based on king's goal attainment theory.

The researcher adopted quantitative research approach and pre experimental one group pre test and post test only design was used to assess the effectiveness of structured teaching programme on knowledge and attitude regarding cord blood stem cell therapy

among antenatal mothers. The study was conducted among the antenatal mothers who attended outpatient department at Jayaa and Suguna hospital Tiruchengode, Namakkal district, and whoever fulfilled the inclusive criteria of the study. The sample size was 30 who were assigned by non probability convenient sampling technique.

The tool for data collection had 3 parts : **part - 1:Demographic data** to collect information on Age ,Religion, Gravida, Education, Previous source on cord blood stem cell therapy. **part - 2 : Structured knowledge questionnaire** to assess the knowledge of antenatal mothers regarding cord blood stem cell therapy. **Part - 3: Likert Attitude Scale** to assess the attitude of antenatal mothers on cord blood stem cell therapy.

The obstetricians and gynecologist experts validated the tool the pilot study was conducted at Raji hospital and it was found practicable and feasible to proceed with the main study. The reliability of the tool was established by test retest method for assessing knowledge, 'r' = 0.83 and inter-rater method for assessing practice, 'r'=0.87.The finding showed that the tool was found to be highly reliable to proceed with the main study.

The ethical aspect of research was maintained through the study by obtaining ethical clearance, formal permission from the respective authorities and consent from the antenatal mothers. Privacy and confidentiality was maintained throughout the data collection period and collected data was used only for the research purpose.

The main study was conducted during February 2016.The collected data was analyzed using SPSS Version 21.

Major findings of the study

The data collected was analyzed using descriptive and inferential statistics. Interpretation and discussion was done based on the objectives of the study, null hypothesis, conceptual framework and research studies from literature review.

- In pretest Majority 30(100%) had inadequate knowledge whereas in the post test after imparting structured teaching programme majority 23(76.67%) had adequate knowledge and only 7(23.33%) had moderately

adequate knowledge regarding cord blood stem cell therapy among antenatal mothers.

- The finding also revealed that in the pretest, almost all 25(83.33%) had unfavourable attitude and 5(16.67%) had moderately favourable attitude whereas in the post test after imparting structured teaching programme majority 21(70%) had favourable attitude, 6(20%) had moderately favourable attitude and 3(10%) had unfavourable attitude regarding cord blood stem cell therapy among antenatal mothers.
- The comparison tables showed that in the pretest, the mean score of knowledge was 11.50 with S.D 2.70 whereas in the post test the mean score of knowledge was 33.06 with S.D 3.93. The calculated paired 't' value of t = 57.742 was found to statistically significant at $p<0.001$ level. This clearly shows that the structured teaching programme imparted to antenatal mothers had significant improvement in the post test level of knowledge regarding cord blood stem cell therapy.
- The finding also shows that in the pretest, the mean score of knowledge was 11.50 with S.D 2.70 whereas in the post test the mean score of knowledge was 33.06 with S.D 3.93. The calculated paired 't' value of t = 57.742 was found to statistically significant at $p<0.001$ level. This clearly shows that the structured teaching programme imparted to antenatal mothers had significant improvement in the post test level of knowledge regarding cord blood stem cell therapy.
- The relationship between that the post mean score of knowledge was 33.06 with S.D 3.93 and the post test attitude score was 78.40 with S.D 14.31. The calculated Karl Pearson's Correlation value of r = 0.715 shows a positive correlation and it was found to be statistically significant at $p<0.01$ level. This clearly indicates that when the knowledge regarding cord blood stem cell therapy among antenatal mothers increases their attitude level also increases.

CONCLUSION

The present study assessed the effectiveness of structured teaching programme on knowledge and attitude regarding cord blood stem cell therapy among antenatal mothers. The results revealed that structured teaching programme is very effective in increasing the level of knowledge and attitude at $p<0.01$ level. From the findings of the study, the investigator concluded that structured teaching programme has an important role in increasing level of knowledge and attitude regarding cord blood stem cell therapy among antenatal mothers.

IMPLICATIONS

The implications drawn from this study are of importance to the field of nursing including nursing service, administration, education and research.

Nursing Practice

- The nurse as a service provider should periodically organize and conduct mass education programme on cord blood stem cell therapy among antenatal mothers.
- The nurse implements the information, education, communication to create aware to the antenatal mothers about stem cell therapy.
- As a service provider the nurse should implement cord blood stem cell therapy among antenatal mothers and improve their knowledge.

Nursing Education

- Nurses must be reinforced in-service education regarding define stem cell therapy and it's types, disease treated by umbilical cord, procedure to collect stem cells.
- Nursing students have to be educated regarding cord blood stem cells therapy among antenatal mothers.

- Nurse educators should emphasize the proper education about stem cell therapy as well as provide opportunity for students to apply the knowledge in their practice.

Nursing Administration

- The nurse as an administrator should implement formal teaching programme on cord blood stem cell therapy among antenatal mothers.
- Provide opportunities for nurses to attend training programmes.
- The nurse must instrumental in pointing out relevant policies of the state and central level of ensure effective programme to educate the public and facilitate optimal recourses allocation for implementation of the programme and create intersectional network about cord blood stem cell therapy.

Nursing Research

- Nurse researchers can promote more research with regard to utilization of disease treated by cord blood stem cell therapy.
- Nurse researchers can collaborate with the other health team members in developing evidence based nursing practice.
- Nursing researcher can encourage clinical nurse to apply the research findings in their daily nursing care activities.

RECOMMENDATIONS

Nursing research is a widely expanding area with need for validating conservative, interventions and development of new knowledge. This study recommends the following for achieving this end.

- A comparative study can be carried out to assess the factors leading to the development of cord blood stem cell therapy between rural and urban population.
- A video teaching program on cord blood stem cell therapy can be conducted in larger samples for better generalization.

- A comparative study can be conducted to compare the effect of structured teaching programme among experimental group and control group without intervention.

LIMITATIONS

- The study was confined to small number of subjects and shorter period.

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APPENDIX I

LETTER SEEKING PERMISSION TO CONDUCT STUDY

From

Mrs. S.Gomathi,

II year M.Sc (N),

Arvind College Of Nursing

Namakkal.

Forwarded Through

Prof. Mrs. V. Kavitha M.Sc (N)

Principal,

Arvinth College of Nursing,

Namakkal.

To

The Administrator

Jayaa and Suguna Hospitals,

Tiruchengode,

Namakkal

Respected Madam/Sir,

Subject : Requesting permission to conduct research in the hospital

As a part of M.Sc Nursing requirement under the fulfillment of the Tamilnadu Dr. M.G.R University,I am conducting a research on "**A study to assess the effectiveness of structured teaching programme on knowledge and attitude regarding cord blood stem cell therapy among antenatal mothers in selected private hospitals at Namakkal district".**Kindly grant me permission to conduct research in your esteemed hospital.

Thanking you,

Yours faithfully

(S.Gomathi)

APPENDIX II

LETTER SEEKING EXPERTS OPENION FOR CONTENT VALIDITY

From

Mrs. S.Gomathi,

II year M.Sc (N),

Namakkal.

To

Respected Madam/Sir,

Sub: requisition for expert opinion on suggestion for content validity of the tool.

I am Mrs. S.Gomathi doing my M.Sc Nursing II year specializing in obstetrical and gynaecological nursing at Arvinth college of Nursing. As a part of my research project to be submitted to the Tamilnadu Dr. M.G.R University requirement for the award of M.Sc (N) degree, I am conducting "**A study to assess the effectiveness of structured teaching programme on knowledge and attitude regarding cord blood stem cell therapy among antenatal mothers in selected private hospitals at Namakkal district".**

I have enclosed my data collection tool and intervention tool for your expert guidance and validation. Kindly do the needful.

Thanking you,

Yours faithfully

(S.Gomathi)

Enclosures:

1. Research Proposal

2. Data collection tool

3. Intervention tool

4. Content validity form

5. Certificate for content validity

APPENDIX III

LIST OF EXPERTS FOR CONTENT VALIDITY

1. Mrs.Malathi, M.Sc (Nursing)

Associate Professor,

J.K.K Nataraja College of nursing,

Komarapalayam.

2. Mr.A.Hamidhunniza, M.Sc (Nursing)

Associate Professor,

Nandha College of nursing,

Erode.

3. Mrs. S.Menaka, M.Sc (Nursing),

Annai J.K.K Sampoorani ammal College of nursing,

Komarapalayam.

4. Dr. Mrs.G.Manimekalai,

Jayaa Hospital,

Tiruchengode.

5. Dr. Mrs.S.Rajeswari,

Raji Hospital,

Tiruchengode.

APPENDIX IV

FORMAT FOR CONTENT VALIDITY

Name of the Expert :

Address :

Total content of the tool: Adequate / Inadequate

Kindly Validate each tool and tick if it applicable

Signature of the expert with date

CRITERIA CHECK LIST FOR VALIDATION OF TOOL

Instruction

Kindly go through the items regarding accuracy, relevancy and appropriateness of the content. There are two response columns in the checklist namely agree, and disagree. Place a tick mark against the specific column. If you disagree, to any of the item, write your remarks and suggestion in given column.

PART - I

DEMOGRAPHIC PERFORMA

S.No	Agree	Disagree	Remarks And Suggestions
1			
2			
3			
4			
5			
6			
7			

PART -II

STRUCTURED KNOWLEDGE QUESTIONNAIRE REGARDING CORD BLOOD STEM CELL THERAPHY AMOUNG ANTENATAL MOTHERS.

S.No	Agree	Disagree	Remarks and suggestions
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			
13			
14			
15			
16			
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39			
40			

SCORE KEY FOR STRUCTURED KNOWLEDGE QUESTIONNAIRE

QUESTION NO	ANSWER	SCORE
1	a	**1**
2	b	1
3	a	1
4	c	1
5	a	1
6	a	1
7	a	1
8	a	1
9	a	1
10	a	1
11	d	1
12	b	1
13	b	1
14	b	1
15	a	1
16	c	1
17	c	1
18	b	1
19	d	1
20	c	1
21	c	1
22	b	1
23	c	1
24	b	1
25	d	1
26	a	1
27	a	1

28	c	1
29	c	1
30	d	1
31	c	1
32	b	1
33	d	1
34	d	1
35	a	1
36	a	1
37	a	1
38	a	1
39	a	1
40	d	1

SCORE: 40

PART - III

LIKERT ATTITUDE SCALE REGARDING CORD BLOOD STEM CELL THERAPY AMONG ANTENATAL MOTHERS

S.No	Question	Strongly agree (5)	Agree (4)	Neither agree nor disagree (3)	Disagree (2)	Strongly Disagree (1)
1	1					
2	2					
3	3					
4	4					
5	5					
6	6					
7	7					
8	8					
9	9					
10	10					
11	11					
12	12					
13	13					
14	14					
15	15					
16	16					
17	17					
18	18					
19	19					
20	20					

NOTE:

This is for positive statements. It will be reversible for negative statements.

APPENDIX V

INFORMED CONSENT FORM

I am Mrs. S.Gomathi doing my M.Sc Nursing II year student at Arvinth college of Nursing, Namakkal, as a part of my research study on "**A study to assess the effectiveness of structured teaching programme on knowledge and attitude regarding cord blood stem cell therapy among antenatal mothers in selected private hospitals at Namakkal district",** is selected to be conducted. The findings of the study will be helpful in gaining knowledge on prevention of coronary artery disease.

I hereby ask you consent and cooperation to participate in the study. The information collected will be confidently and anonymity will be maintained.

(Signature of investigator)

I_____, here by consent to participate and undergo the study.

Place:

Date:

(Signature of the participant)

APPENDIX VI

CERTIFICATE FOR CONTENT VALIDITY

This is to certify that the tool developed by S.Gomathi, M.Sc Nursing II year student at Arvinth college of Nursing for his study, "**A study to assess the effectiveness of structured teaching programme on knowledge and attitude regarding cord blood stem cell therapy among antenatal mothers in selected private hospitals at Namakkal district",** is validated by the undersigned and he can proceed with this tool to conduct the main study.

Seal:

Signature with Date

APPENDIX VII

CERTIFICATE OF ENGLISH EDITING

TO WHOM SO EVER MAY CONCERN

This is to certify the dissertation work "**A study to assess the effectiveness of structured teaching programme on knowledge and attitude regarding cord blood stem cell therapy among antenatal mothers in selected private hospitals at Namakkal district",** done by S.Gomathi, II year M.Sc Nursing student at Arvinth college of Nursing, Namakkal, is edited for English language appropriateness.

Seal with Date:

Signature

APPENDIX VIII

CERTIFICATE OF TAMIL EDITING

TO WHOM SO EVER MAY CONCERN

This is to certify the dissertation work "**A study to assess the effectiveness of structured teaching programme on knowledge and attitude regarding cord blood stem cell therapy among antenatal mothers in selected private hospitals at Namakkal district",** done by S.Gomathi, II year M.Sc Nursing student at Arvinth college of Nursing, Namakkal, is edited for tamil language appropriateness.

Seal with Date:

Signature

LESSON PLAN

ON

STEM CELL THERAPY

LESSON PLAN

Name of the topic : Stem Cell Therapy

Duration : 1hour

Group and Number : Antenatal mothers, 30

Place :Selected hospitals at Namakkal district

Method of teaching : Lecture cum discussion

Medium of Instruction : Tamil

Teaching Aid : Power point presentation

Health Educator : Student Teacher

GENERAL OBJECTIVE

The antenatal mother will be able to gain adequate knowledge and improve attitude about stem cell therapy and can improve the baby health.

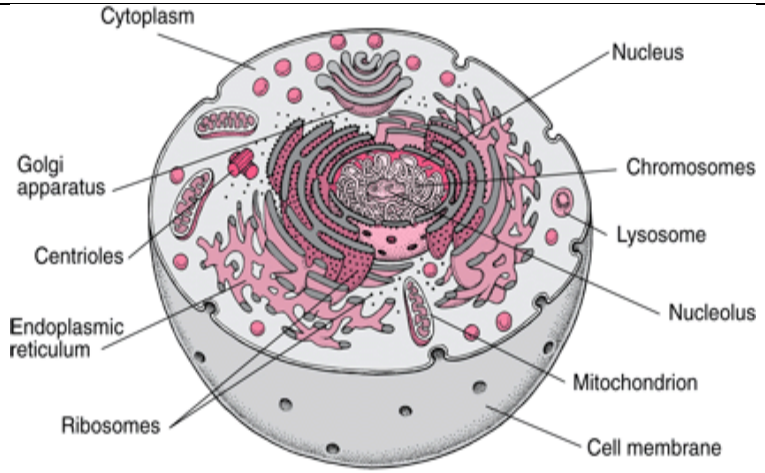
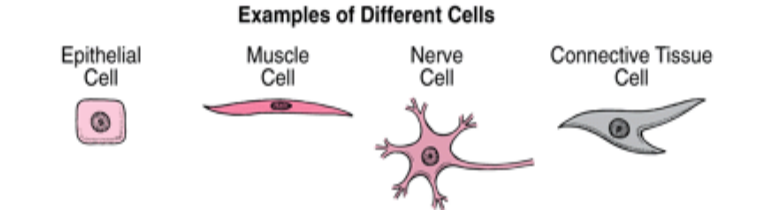
SPECIFIC OBJECTIVE

The antenatal mothers will be able to,

- Introduce the topic
- Define normal cell structure.
- Describe normal cell division.
- Define stem cells.
- State history of Stem Cell Therapy.
- List down types of stem cells.
- Describe the properties of stem cells.
- Enumerate diseases treated by umbilical cord blood.
- Explain procedure to collect stem cells.

S.NO	TIME	SPECIFIC OBJECTIVE	CONTENT	TEACHER'S & LEARNER'S ACTIVITY	Av.Aids	EVALUATION
1.	6 mts	Introduce the topic	"Every baby deserves the right to start healthy life" The umbilical cord is one of the richest source of pure young stem cells in the human body.Stem cells are the very foundation of the human body.Every part of our body including blood,bone,skin and muscles are formed from master cells known as stem cells.Cord blood stem cells are master cells of our body used in the treatment of nearly 80 diseases,including wide range of cancers,genetic diseases and blood transplant. When a transplant is successful a healthy new immune system has been treated.Umblical cord stem cells when preserve under cryogenic conditions have no expiration date, thereby providing life time benefit.	Explaining topic with help of the powerpoint Presentation	powerpoint Presentation	What is stem cell therapy?

2	7 mts	Define normal Cell Structure	Cells the basic form of life.Every organ is composed of cells As soon as the fertilization is completed, cells start to divide into millions of cells to form the shape of the organism. There are two major types of cells that are present . They are stem cells and normal cells . Normal cells are the cells that have been differentiated to perform a special function in a localized area in the body. Human body contains about 40 trillion cells and almost all of them are normal cells. Stem cells can make copies of itself and make more specialized type of cell .	Explain about the normal cells with help of AV.aids	powerpoint Presentation	What are the normal cell membrane ?

			  A cell consists of anucleus and cytoplasm and is contained within the cell membrane , which regulates	Questioning and answering	Power point presentation	What are the different cells?

			What passes in and out.The nucleus contains chromosomes,which are the cell's genetic material and a nucleus which produces ribosomes. Ribosomes produce proteins, which are packaged by the golgi apparatusso that they can leave the cell. The cytoplasm consists of a fluid material and organelles,which could be considered the cell's organs.The endoplasmic reticulum transports materials within the cell.Mitochondria generate energy for the cell's activities.Lysosomes contain enzymes that can break down particles entering the cell.	Questioning and answering	Power point presentation	What are the normal cell membrane ?

3	**3 mts**	Describe normal cell division	**Normal cell devision** Depending on the type of cell, there are two ways cells divide—mitosis and meiosis. Each of these methods of cell division has special characteristics. One of the key differences in mitosis is a single cell divides into two cells that are replicas of each other and have the same number of chromosomes. This type of cell division is good for basic growth of Somatic cells make up most of your body's tissues and organs, including skin, muscles, lungs, gut, and hair cells repair and maintenance. In meiosis a cell divides into two cells that have half the number of chromosomes. Reducing the number of chromosomes by half is important for sexual reproduction and provides for genetic diversity.	Explain about the normal cell division with the help of Av .aids	Listening and asking doubts	What is normal cell division?

4	3 mts	Define stem cells	**DEFINE STEM CELLS** Stem cells are the cells that can develop into other types of cells, especially during the embryonic period. They are actually undifferentiated typical cells. During the development of an animal, these cells will divide by mitosis to produce differentiated cells such as white blood cells, red blood cells, neurons, etc. Two categories of stem cells can be found in our bodies. Stem cells found inside the blastocyst during the embryonic period are known **as** embryonic stem cells**.** stem cells are infused into a patient's blood stream where they go to work healing and reparing damaged cell and tissue. The other type is called adult stem cells**.**The british law which regulates the storage and use of embryos called human embryo protection act.	Explaining the content with the help of Av.aid	Power point presentation	What are all the different types of stem cells?

5	7 mts	State history of stem cell therapy	**HISTORY OF STEM CELL THERAPY** Stem cells have an interesting history that has been somewhat tainted with debate and controversy. In the mid 1800s it was discovered that cells were basically the building blocks of life and that some cells had the ability to produce other cells. Attempts were made to fertilise mammalian eggs outside of the human body and in the early 1900s, it was discovered that some cells had the ability to generate blood cells. ➢ 1974 – First reports on the presence of stem /progenitor cells in human cord blood. ➢ 1983 – Dr.Hal Broxmeyer and Colleagues are the first to propose the concept of using umbilical cord blood as an alternative source of stem cells to bone marrow for transplant.They created the first "proof of principle" for cord blood bank. ➢ 1988-Dr.Eliane Gluckman of St.Louis hospital paris-the first successful cord blood transplant in the world	Questioning and answering	Power point presentation	What is the history about stem cells?

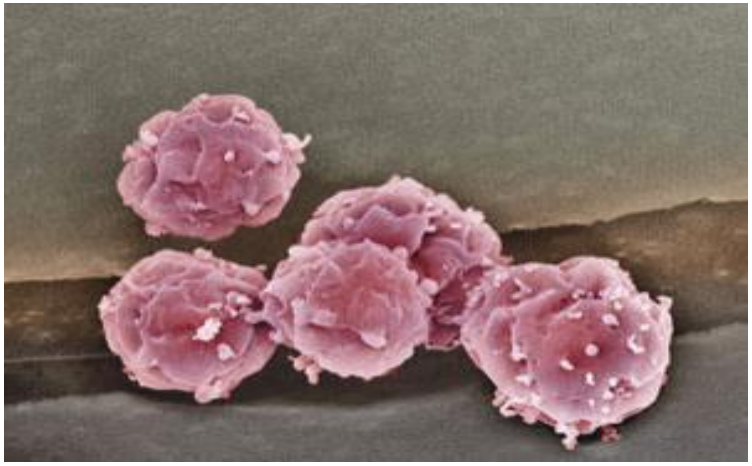
			is preferred in france on 5 year old boy ,(Matthew Farrow)suffering from "fanconi's" anemia (blood disorder).cord blood collected from his sister birth and stored by Dr.Hal Broxmeyer. ➢ 1990 – World's first cord blood transplant for the treatment of leukemia is performed by Dr.John Wagner at the university of Minnesota. ➢ 1993-World's first unrealated cord blood transplant is performed by Dr.Kurtzberg at Duke university medical center. ➢ 2004- Illinois becomes first state to enact legislation supportive of cord blood banking. ➢ 2004 -05 – Researchers confirm that pluripotent stem cells are present in cord blood.This indicating the possible use of cord blood for the treatment of diseases other than those of blood origin. ➢ 2008-12,000 cord blood stem cell transplants have been performed worldwide.Cord blood is being used in the treatment of 80 life –threatening diseases.			

6	7 mts	List down types of stem cells	**TYPES OF STEM CELLS** Stem cells are the foundation for every organ and tissue in your body. There are many different types of stem cells that come from different places in the body or are formed at different times in our lives. These include • Embryonic stem cells • Tissue-specific stem cells • Mesenchymal stem cells • Induced pluripotent stem cells **Embryonic stem cells** Embryonic stem cells are obtained from the inner cell mass of the blastocyst, a mainly hollow ball of cells that, in the human, forms three to five days after an egg cell is fertilized by a sperm.	Explaining the content with the help of Av.aid	Power point presentation	What are all the different types of stem cells?

			In normal development, the cells inside the inner cell mass will give rise to the more specialized cells that give rise to the entire body—all of our tissues and organs. However, when scientists extract the inner cell mass and grow these cells in special laboratory conditions, they retain the properties of embryonic stem cells. Embryonic stem cells are pluripotent, meaning they can give rise to every cell type in the fully formed body, but not the placenta and umbilical cord. In the year of 1998 human embryonic stem cells first successfully produced and cultured. Invitro fertilization are the blastocyst used to make human embryonic stem cells about 4-5 days.Embryonic stem cells for treating such immune disorders as type 1 diabetes and rheumatoid arthritis. **Tissue-specific stem cells** Tissue-specific stem cells (also referred to			

			as somatic *or* adult stem cells) are more specialized than embryonic stem cells. Typically, these stem cells can generate different cell types for the specific tissue or organ in which they live. For example, blood-forming (or hematopoietic) stem cells in the bone marrow can give rise to red blood cells, white blood cells and platelets. Tissue-specific stem cells can be difficult to find in the human body, and they don't seem to self-renew in culture as easily as embryonic stem cells do. **Mesenchymal Stem Cells** These are multipotent stem cells normally found in the bone marrow and are derived from mesenchyme. They differentiate into adipocytes, chondrocytes, osteoblasts, myocytes and tendon. MSCs can also be extracted from blood, fallopian tube, fetal liver and lungs.			

			Induced pluripotent stem cells Induced pluripotent stem *(*iPS*) cells* are cells that have been engineered in the lab by converting tissue-specific cells, such as skin cells, into cells that behave like embryonic stem cells. IPS cells are critical tools to help scientists learn more about normal development and disease onset and progression, and they are also useful for developing and testing new drugs and therapies.Pluripotent stem cells are now defined as those able to make all cells except extra embryonic tissues such as placenta.			

7.	6 mts	Describe the properties of stem cells	**PROPERTIES OF STEM CELLS**  Stem cells differ from other kinds of cells in the body. All stem cells—regardless of their source—have three general properties: ➢ they are capable of dividing and renewing	Explaining the content with the help of Av.aid	Power point presentation	What are the Properties of stem cells?

			themselves for longer periods ➢ they are unspecialized ➢ they can give rise to specialized cell types. small volume of liquid corresponds to 470 million Total Nucleated Cells (TNC) or 1.8 million cells that test positive for the stem cell marker CD34. Thus, most healthy full-term babies have over a million blood-forming stem cells in their umbilical cord blood.			
8.	**11 mts**	Enumerate diseases treated by umbilical cord blood.	**DISEASES TREATED BY UMBILICAL CORD BLOOD STEM CELLS** Since 1989, umbilical cord blood has been used successfully to treat children with leukaemia, anaemias and other blood diseases. Researchers are now looking at ways of increasing the number of haematopoietic stem cells that can be obtained from cord blood, so that they can be used to treat adults routinely too.Leukaemia patients must receiving stem cells transplants from closely related doners such as sibilings.	Explaining the content with the help of Av.aid	Power point presentation	How to treat disease by umbilical cord blood?

			Leukemias, Lymphomas and other Blood Cancers Acute Biphenotypic Leukemia Acute Lymphocytic Leukemia (ALL) Acute Myelogenous Leukemia (AML) Acute Undifferentiated Leukemia Adult T Cell Leukemia/Lymphoma Chronic Lymphocytic Leukemia (CLL) Chronic Myelogenous Leukemia (CML) Hodgkin's Lymphoma Juvenile Chronic Myelogenous Leukemia (JCML) Juvenile Myelomonocytic Leukemia (JMML) Multiple Myeloma Myeloid/Natural Killer Cell Precursor Leukemia Non-Hodgkin's Lymphoma Prolymphocytic Leukemia Plasma Cell Leukemia Waldenstrom's Macroglobulinemia and so.			

<table>
<tr>
<td>9.</td>
<td>10 mts</td>
<td>Explain Procedure to collect stem cell</td>
<td>
PROCEDURE TO COLLECT STEM CELLS

Umbilical cord blood bank collection centers are in various places of India , like Chennai ,Mumbai, Newdelhi, Pune, Kolkata, Hyderabad ,Bangalore, Ahmedabad and various other cities .

<u>Current Cost of Cord blood stem cell Therapy</u>
<table>
<tr><td></td><td>ANNUAL STORAGE</td><td>21 YRS</td><td>LIFE TIME</td></tr>
<tr><td>processing fee</td><td>10,000</td><td>10,000</td><td>10,000</td></tr>
<tr><td>storage fee</td><td>3,500/ monthly</td><td>25,000 (single payment)</td><td>40,000 (single payment</td></tr>
</table>
</td>
<td>Explaining the content with the help of Av.aid</td>
<td>Power point presentation</td>
<td>How much blood collected from the baby?</td>
</tr>
</table>

			• The science of cryobiology tells us that cells which are cryogenically preserved remain viable for decades. It has been confirmed that cord blood stem cells were still viable after being frozen 23+ years. • The median size of cord blood collections in family banks is 60mL or 2 ounces. • The hospital should intimate to the service centre regarding placental stem cells collection between 1-6 months of pregnancy. • The antenatal mother decides at the last moment to order a collection of cord blood stem cells at short notice. • Getting consent from the donor. • Explaining the procedure to the mother. • The mother may have a vaginal birth or a		Power point presentation	How to collect the stem cells?

			cesarean section,the process of collecting new born baby's stem cell is safe,painless, and non - disruptive to mother and baby. • After baby is born, baby's umbilical cord is clamped and cut. • A specialized blood bag is then bar-coded for collection of cord blood . • For the collection step the needle of the blood bag is inserted into the umbilical vein and the bag is held at a lower level in order to allow the blood to drain into the bag . • Stem cells are then harvested from the cord blood and stored in cryo-vials at 196^0 c in liquid nitrogen . • The blood volume of term baby is about 70ml/kg while the placenta contains 45ml of blood per kg of fetal weight . • Then it is transferred to the			

			approved,heparin-free collection bags which are sterile. • To collect cord tissue the umbilical cord is cleaned, a small segment is placed into the provided collection jar,and it is sent back to lab with the cord blood bag. As soon as kit arrives to the delivery room with in 10 minutes they are collecting blood. • Umbilical cord blood is collected after delivery of the baby from the residual blood in placental cord unit. • Once collection is done,obstetrician or midwife will seal the bag,attach the pre-printed lables with mother and baby's complete detailed information,and place it in the cordlife collection kit. • By comparison, most public cord blood banks will only keep collections that are			

			much bigger than average, and throw out the donations that are below a threshold of a billion TNC, corresponding to a blood volume of about 90-100 mL or 3 ounces. • The standard procedure for transporting fresh cord blood is to keep it within an ambient temperature range of 15 °C (59 °F) to 25 °C (77 °F). • Public cord blood banks set a limit of 48 hours on the time between birth and processing the blood for cryogenic storage. • In the cryopreservation process, the stem cells collected from umbilical cord blood samples,are frozen to sub zero temperatures(Preserved safely under-196^0 c). • Umblical cord stem cells preserved under cryogenic conditions have no expiration date			

			there by providing life time benefit. • The parents, until the child become major remains as legal authority for placental stem cells utilization. • Proper maintenance of records. • Confidentiality will be maintained.			

SUMMARY

So far we had seen about what is cell, stem cell and their types, sources of stem cell, how to store stem cell, stem cells banking, what are all the advantages and disadvantages, side effects and nurses role in stem cell therapy.

CONCLUSION

From this lesson plan I learnt about stem cell therapy in detail and about stem cell banking. I hope this is very useful for me and my carrier. In current and future perspective of the stem cells research report, the stem cells have many significant advantages .

SUMMATIVE EVALUATION

1. What is stem cell therapy?
2. What are all the types of stem cells?
3. How to store the stem cell therapy

[illegible]

[illegible]

[illegible]

[illegible] ஜெயா மற்றும் சுகுணா மருத்துவமனை,திருச்செங்கோடு

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ண்◌யிதுஜீ◌ ◌◌◌ழ்◌ ◌ ஃங்ல்ழூஜீண்◌◌◌ழ்ஃசீண்துற்ஜ◌ழ்ஃ◌ ◌◌துஜீஃ

◌ ◌◌◌ஞுஸ்ஃசீள்◌சுப்நுப் ◌ஃஜீஃ

ஃ ஃ ப்◌◌◌◌ ஃழ்◌ூண்◌◌ய் ◌ஃ[illegible]ஃ

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- ❖ ய்◌ழ்◌ஜீய் ஃ◌ய்ழூ◌◌◌ ◌ ◌ஃ◌ ◌◌◌நுப் ◌ஃ
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- ❖ ◌ ◌◌ழ்◌ ஃ◌ ◌ஷ◌ய்◌ ◌ ஃ◌ஜீ◌யிஃ
- ❖ ◌ ◌◌ழ்◌ ஃ◌ ◌ப்ப் ◌ ◌ஃஜீஞுஸ்◌ ஜஃ
- ❖ ◌ ◌◌ழ்◌ ◌ ◌ஃஜீ◌ ◌ய் ◌ ◌ஃ◌ ◌◌◌ழ்ழூஃ
- ❖ ◌ழ்◌◌◌◌ ◌ப் ◌◌ஃ◌ஜீ◌ழ்◌◌◌ ஃ◌ ◌துஜீ◌ ◌ஷ◌ய்ஃசீள்◌ூப் ◌ ◌ஃங்வ் சு◌ஜழ்ழூஃ
- ❖ ◌ ◌◌ழ்◌ சுப் ◌ ◌ஃசீய்ப் ◌சு◌ துஜீண்◌ல்◌ ◌ ◌ய் ◌ ◌ஃ◌ ◌சு◌ழ்ழூஃ
- ❖ ழ்◌ூண்◌◌ய் ◌ ◌ஃழ்ஸ்◌◌ற்ஜ◌ழ்ஃண்◌யிதுஜீஜீண்◌◌◌ழூ◌ய்◌ ◌ஸ்◌◌ ஃ◌ற்◌யி◌◌ய் ◌ஃ

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ுகூ ஞ ஃ	சீஸ்ஜ்துூ	ுுுணு்ஃ சீஸ்ஆப் துூ	ுற்ு ல்சுப் துூ	ு பூுுுஃ ுய்ஸ்ஃமூஃ	ப்ுசீற்ுு ஃ ுய்ஸ்ஃமூஃ	த்கி ஃ ஸ்யிதுூ த்ு ஃ ஹு ண்ுஃ	ண்ுஜம்மூஃ
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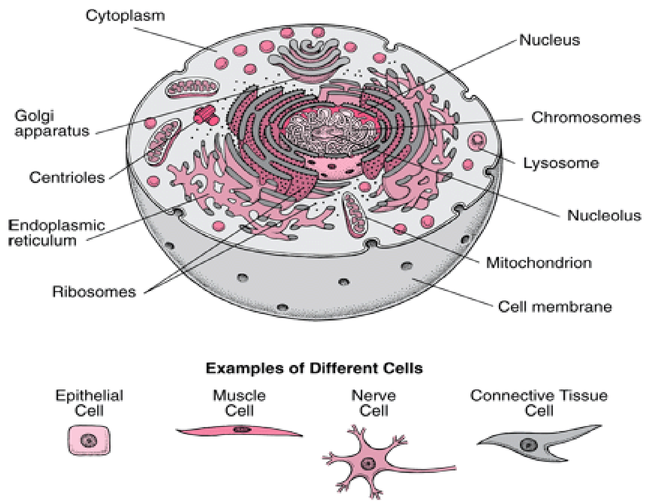
ஃ	ஃ	ஃ	ற்ஸ்சுுுுுகூ	ஃ	ஃ	ஃ	ஃ
	ஃ	ஃ	ஃ	ஃ	ஃ	ஃ	ஃ

தூ°	ர°ீ ◌/ ல்°ீ நுப் ◌°ீ °ீ °ீ °ீ	ய்ழ்ஜ்வ ீ ◌ய்மூ° ஹ◌ ன்◌◌ ற்°ீ ற்◌◌°ீ ◌ ◌ ஜ்ஸ்◌ ◌°ீ °ீ	◌ய்மூய் ◌°ீ ங்◌ ◌◌ ீ ஹ◌ ◌ற்◌ ல்°ீ ◌ ஜூ ◌ப்°ீ ◌ ◌ ஜ்◌ மூ ப்◌ ◌ழ்◌◌ழ்மூ◌ ◌◌ழ்◌ல்◌ °ங்◌ ஜ்◌ சுப்◌ °ங்◌ ◌◌ ◌◌ழ்°ீீ ◌◌◌ மூ ஹ◌ ன்சுப்°◌ய்மூய் ◌°/ மூ◌ ஸ்◌ °வ் சு◌ மூ◌◌சுப் ◌ழ்◌ல்நு◌ தூ°◌ய்மூய் ◌°◌ சு◌ ஸ்ஸ்◌ °◌ ஜ்◌ ஜ°◌ ◌ ப்ப் ◌ ங்◌ ◌ ◌ கூ° ஹழ்◌◌ ◌°ீ ◌ ◌ ◌ழ்◌ ீ ன்◌யிதூ° ய்ழ்ஜ்வ ◌ய்மூய் ◌ கூ° ய்ழ்ஜ்வ °◌ய்மூய் ◌°ங்ல்◌ ◌ °சீ◌ யிற்ஞ்ஸ்°ற்◌ ◌ ◌ மூ°த் ◌ ◌◌◌°◌ய்மூஜப் ◌ ◌ °◌ப் ◌◌ ஜ◌ ◌ ◌ கூ°ன்◌ ழ்°ங்ல்◌ மூ படீ ◌◌மூ◌ ஸ்◌ ீ ◌ய்மூய் ◌°ீ ங்◌ ◌ல்நு◌ தூ° ன்◌யிதூ ◌ஞ்ஸ்◌ழ்ஞ்ஸ்°ீ ஹ◌ ◌ ◌◌ தூ° ய்ழ்ஜ்வ ீ ◌ய்மூய்ப் ◌ ◌ய் ங்◌ ◌ ◌ கூ° த்யூ◌◌ ◌◌ ீ ங்யி◌◌தூ° ◌ய்மூய் ◌ மூ ங்◌ ◌ ◌◌ ◌ ◌◌ கூ°◌ ◌ ◌◌விதூ°ங்ல்மூ°ப் ஞ்ஸ்◌ ன்◌◌°ன்◌யிதூ ற்◌ ◌ப் ◌°ீ த்யூ◌◌ ◌◌ ீ ங்யி◌◌ ◌ ◌ ◌◌ தூ° சீ◌ யிற்ஞ ப்◌வ ◌ற்ஜ ◌ ◌ ◌◌ கூ°ய்ழ்ஜ்வ °◌ய்மூய் ◌°ன்◌◌°◌ ◌ ப்ஸ்◌◌ ◌ய்மூய் கி ◌ ◌ ◌◌ °சீ◌ யிற்ஜ ◌◌ °ப் ◌ஜ தூ°◌ ◌◌ °◌ மூ◌ ◌ கூ ◌ ◌ ◌மூ°ஹ◌ ◌ப் கி மூ° ◌ற்◌ தூற்◌◌ தூ°◌ ◌ ◌◌◌ ◌◌◌◌ ◌மூ ◌◌சுப் ◌ ◌◌தூ°ஹசீழ்°சீஸ்ஜ்◌ ◌மூ°◌ய்மூய் ◌°◌ ◌ ◌◌யி◌◌ ◌◌ ◌ ◌ ◌ற்◌ ழ்°ஹவின்◌ ◌ற்◌ மூ◌ ◌ கூ°	◌ ◌ சு◌ ழ்மூ °ீ °ீ	ப்◌ ◌ ◌ழ்மூ °ீ	/ ◌ °ங் ஞ்ஸ்° ◌ ◌ சுப் °ீ ப் ◌ஞ ◌°ீீீ	°ீ ◌ய்மூ◌ ◌◌ °ீ ஞ்◌ ◌◌மூ° ஞ்◌ ◌ ஜ°ீ °ீ °ீ

ஃ ஃ	ஃ ஃ	ஃ ஃ	 ஃ ஃஃஃஃெய்பூ்ெஃ ப்ெஃ ஞ்ெயிதுஃ ப்ெெெ ெெ ெபூ ெ சுப்ெற்ஜெெ ெெ கஃ ெெெப்ெஃ ெய்பூசீழ்ெெ ல்ெ ெெவ் சுப்ெற்ஞஜெெெ கஃ ஙஞ்ெஃ ெசீஜ்ெசீஞ்ெசீய்ெதுா்ெக ஞ்ஜ்ெ சுப்ெகஃ ஞ்ெயிதுஃ ெெ ப்ெசுப்ெெ ெப்ெெ ெெசுெெ ெெ கஃ ெெெப்ெஃ ெசீற்ெசீய்ெதுா்ெெ ஙெெெெெ ெெ கஃ ெசீற்ெசீய்ெதுா்ெஃ ெஜ்நுப்ெெ ஙெெெெெ ெெ கஃஃ ஃஃஃஃஃ	ஃ ஃ	ஃ ஃ	ஃ	ஃ ஃ

			ஃஃஃசீப்மூப்ஹற்ஜ்ஃ ய்மூய்ஃ ணஜஃங்கீ ய்ணீல்ய்துஜ்ஃற்ஃன்யிதூங்ய் யிய்ப்ஃ ப்ய் ஜ்கீ ய்ப்ஃ ய்மூங்யிய்ப்ஃ ஞ்ய் யிஃ ப்ழ்ற்ஜ்கீ ஞ்ய் சீல்ய்/ சுஃ ஞ்ஜூய்துதூ ய்ற்ய்ப்ஃய்மூய்ஃப்ய் ஜஃய்மூய்கீ ண்ணீல்வ்ய் ய்ஸ்ஃ ழ்ய்ஃ ய்மூய்ஃ ய்ஸ்சுப்ஃ ச் சுய் சுய்கீ ய்சீப்சீப்தூர்ஃ ய்மூஃ ய்துதூ ய்ப்ப்ஃ ங்ய்ல்சுப்ஃ ய்ஸ்ழ்ஃ ஞ்ய் ய்துர்ஃ ய்ப்ய் ய்சுய்கீ ய்வ்ப்ன்ஃ ய்மூய்மூ ற்றுசீப்கீ				

ஃ நஃ	ஃ நஃ ◌/ ல்நு ப்◌ஃ	ஃ ய்◌ழ்◌ஜ்ஞ் ஃ ◌ய்ழூஃ பிரிதல்ஃ பற்றி ◌ ◌◌ஃ ◌நுப்◌ஙஃ	ஃ ஃ <u>ய்◌ழ்◌ஜ்ஞ் ஃ◌ய்ழூய்கி◌ ஃ◌◌ப்ற்◌ஜ ஃழஃ</u> ஃஃ◌ய்ழூய்◌ஃ◌ஜ்ஞ ஜஃ◌◌◌ப்ப்◌◌வ்ஃ◌◌சுப்◌ற்ஜ◌◌ ◌◌◌ஙஃ ஹா◌◌ஃ◌ ◌◌◌◌◌◌◌◌◌◌ஃ ன்◌யிதுஹீ◌ த்ஜசுப்◌◌◌◌ஙஃ ◌◌ழ்ஃ ◌◌ப்ஸ்◌◌ ஃ◌ய்ழூய்◌ஃத்யூ◌◌◌◌ யிதுஹீ◌◌◌◌◌ஃற்◌ வ்◌◌◌ஃ ப்◌◌◌ ஜ◌◌◌◌ ஙஃ◌◌◌◌◌◌◌◌◌◌ ◌ஃ◌◌ சு◌◌ஸ்ஃசீ◌◌யிற்ஜ◌ஃ த்◌◌◌◌ஃ◌◌◌◌ழ்◌ சுப்◌◌◌ஃ◌ப்◌◌ ஜ◌◌◌◌ ஙஃஃ ஃ ஃஃஃஃஃ◌◌◌ஃ ◌ஜ்ஞ ல்வ்ஃ◌ ◌◌◌◌தூற்◌◌◌ஃ த்◌ழ்ஃ ◌சீஜ்ஜீன்ஜீய்◌தூற்◌◌◌ஃ ◌ப்◌◌ ◌◌◌◌சு◌◌◌◌◌ ◌◌ழ்ஃ ◌◌ப்ஸ்◌◌ ஃ◌ய்ழூய்◌ஃங்ல்◌◌ ◌ஃஹா◌◌ற்◌ல்ஃ◌◌◌ஹு◌ஸ்◌◌ ஃ ◌திஙஃங்ல்ழூங்யி◌◌ப்◌ஙஃசீழ்◌ழூழ்◌ய்ஙஃ◌◌ஜ்ஞ்ஜுஙஃஃ◌ல்ழூ ன்◌யிதுஹீ◌ ◌◌ஃ◌ ◌◌◌ப்ப்◌ஃ ற்◌◌சுப்◌ற்ஜுழூஃ◌ ய்ழூய்◌ஃ ற்◌◌ப்◌சுப்ஃ ங்ழ்◌◌◌ ◌◌◌ஙஃ த்ஜசுப்◌◌◌◌ஃ ய்ழூய்◌ஃ ◌ஜ்ஞ ல்வ்ஃ◌ ◌◌◌◌ல்◌தூற்◌◌◌ஃ ◌சீஜ்ஜீன்ஜீய்◌தூற்கி◌ ஃ ஞ்ஞ ◌ சு◌◌ப்ஃற்◌◌ஸ்வ்ஃ◌◌ ◌◌◌◌ ◌◌ஙஃசீன்◌தூஹீற்◌◌ ஸ்ழூஃ ◌◌ ◌◌◌ற்◌சுப்தூஹீ◌ ன்◌யிதுஹீ◌ ◌◌◌ழ்◌ சுப்◌◌ஃ சீ◌யிற்ஜுஜ◌ஃ ப்◌வ்ஞ் ற்ஜ◌◌ ◌◌◌ஙஃ	ஃ ◌◌சு◌◌ழ்ழூஃ	ஃ ப்◌◌◌ ◌◌ழ்ழூஃ	ஃ / ◌◌ஃங்ஜுஸ்ஃ ◌◌சுப்ஃ ப்◌ஜுஜ◌ஃ	ஃ ய்◌ழ்◌ஜ்ஞ் ஃ ◌ய்ழூய்◌◌ஃ ஞ்ஞ ◌◌ழூஃ ஞ்ஞ ◌◌ஜஃ

ஃ பஃ	ஃ நஃ ற/ ல்நு ப்றஃ	ஃ றறறழ்ற ஃ றறஜ்ஸ்ற றஃ	ஃ றறறழ்ற ஃறறஜ்ஸ்ற றஃழஃ ஃஃஸ்றறறழ்ற சுப்றஃ றறற்ஸ்ஃ ப்றப்றறறறழூஃ ன்றறஃ றறப்ஸ்றறஃ ய்ழூப்கி றறறறஃ ங்றறறறற றறக் ங்ற றன்றழூஃற சுப்ன்றறஃ ஃய்ழூப்கி றறறறஃசீறயிற்ஜ்யிஃ ப்ஜ்வ் ற்ஜறறறறக் ஃ றநுறஃ ங்றறறறசுப்றறற சீற்றறஃ றறறயிறறறற ழூஸ்ய்ழூப்றஃஸ்ஜ்ழ்ஃறறறறஃஹற சுப்றக் றஜ்ழ்ஃ றறற்ற சுப்றஃ ன்யிதுஃ ற்றிஜ்றப்றஃ சீற்றற யிஃ சீறயிற்ஜ்ஃ ய்ழூப்ப்றறஃ ங்ற்றறஃ ய்ழூறற றறக்ஃ ன்ன்றஃ ங்ல்ழூஃ றஜ்ற ஜஃ றறப்ஸ்றறஃ றறறழ்ற சுப்றறஃ றப்றற ஜறறறக்ஃ ப்றஃப் றறறறழூஃ றறறறறஃ றறறழ்ஸ்ஃ ப்றற றஃறறஹறற ழூஸ்ப்ஜ்வ் ற்ஜதுஃற றறழ்ற சுப்றஃய்றஃ றறறழ்ற சுப்றஃ ஞ்றயிஃ ஹாறசுப்ற்ஜறறற றக் ன்றறறற யிஃ றறறஹறஸ்றல்றழ்ஃ றறறழ்ற சுப்றஃ ஞ்றயிஃ ஹாறசுப்ற்ஜறறற றக்ஃ	ஃ றறசுறழ்ழூஸ்	ஃ ப்றற றழ்ழூஸ்	ஃ / றப்ணஸ்ஃ றறசுப்ஃ ப்றஜறஃ	ஃ றறறழ்ற ஃ ப்கிறஃ சீறயிற்ஜஸ்ஃ றறப்ப்றஃ ஞ்றறஜஃ

ஃ மஃ	ஃ ரஃ ூ/ ல்நு ப்ூஃ	ஃ ூூூழ்ூ ஃ ூூஷூ யஃ ூூ ஃ ூஜ்ஜூயிஃ	ஃ ூூூழ்ூ ஃஷூஷூ யஃஷூ ூூஷ்றூஸ்ஃஷூஜ்ஜூயிஃஷ்ஃ ஃஷூூூழ்ூ சுப்ூஃற்ூூஸ்ஃூஜ்ஜூயிஃ/ ப்ஃதிூஜ்ஜூ ஸ்ண்ஜூ ஃ ந்ஜ்ஜூஃ ூூூழ்ழ்துஃ ண்ூயிதுஃ யஜூயசுூஸ்ஃ ப்ூூூஃ சீூயிற்ஜூப்ூ ல்ூஃங்ஜூ ற்ஜூூூகஃ ணடஃங்கிமூஃூயமுப்ூஃ ூஜூசுூப்ூூஃ ஹூற்ூல்ூஸ்ஃ ூப்ஜூ ூூழ்ூஃ ஞூயிஃ ப்ூ ஜூூசுப்ற்ஞூஸ்ூஃ ண்ூயிதுஃ ூூஃ ூயமுப்ூஃ ண்ூஃ ூயமுப்கிூஃங்ற்ூூஃூூ மூஃூூழ்ூஃஞூயிதுஃண்ூ ழ்ஃ ங்ல்ூூஃ ூூகிசீஸ்ஃ ற்ஜூ ஞூஃ ூஞூல்ப்ூஃ ூூண்ஜூசுூஃ ூஸ்ூூப்ூஃ சீண்ூப்ஜூூற்ஞூஸ்ூகஃ ணடப்கிமூஃ ூூஃ ூயமுப்ூஃ ூஜ்ஜூழ்ஃ ஹூ சுப்ூூஃ ங்ூூஜூசுூதுஃ ூூூஃ ூப்ஜூ ல்ழ்ூய்ஃஷூூசுூதுஃஞூயிஃங்ூ ல்ூற்ஞூஸ்ூகஃ ஃணரபூமூஃூழ்ூஃூழ்ூமூஃண்ூ ழ்ஃூழ்ூூூூப்ஜூஃூஜ்ஜூழ்ஃ ூூூழ்ூ சுப்ூஃங்ூ ஜூூசுப்ற்ஞூஸ்ூகஃ ஃஃணரநூமூஃ ல்ஜூசுல்ஜூஃ ூ ூமூஃ ூஜ்ஜூசுூ/ ஸ்ஜூஃ ண்ூயிது ூப்ஜூசீூூஸ்ூ ஃூழ்ூ ஃூழ்ூமூஃயப்ஃஞூ துூஃண்ூூூூமூ ங்ூூஃ ூூூழ்ூ சுப்ூஃ த்ூஃ ண்ூயிஃ ூ ழ்ஜூண்ூப்ஃ ூழ்ூூூூப்ஜூஃூஜ்ஜூழ்ூூழ்ஃற்ஸ்ூ ற்ஜூூூ ஜூஃூூய்ூஃ ூழ்ூூூூப்ஜூஃ ஜ்ஜூழ்ஃ ூநுூஃ ூ ழ்ஜூஃ ூப்ஜூூப்ூஸ்ஃ ங்ூூஜூசுூூ ஜூஃ ஃ	ஃ ூூசுூழ்மூ	ஃ ப்ூூ ூழ்மூ	ஃ / ூஃங்ஞூஸ்ஃ ூூசுப்ஃ ப்ஜூஞூஃ	ஃ ூூூழ்ூ ஃ ப்கிூஃ ூஜ்ஜூயிஃ ஞூூஜூமூஃ ஞூூஜஃ

			ஃஃணைமை௦ைழ்ஃ ல்ஜைசுல்ஜைஞ்ஜ௦சீ௦ஃ ௦௦சுசீண்௦ஃ ௦ய்ப்௦௦ ஞுஸ்ஃ ௦ ௦௦ஃண்௦௦௦௦ண்௦௦௦ழைஃங்௦௦௦ஃ௦ழ்௦ஃ௦ழ்௦ழை ய்ப்ஞ்௦துஜைஃண்௦௦௦௦ழைஃங்௦௦ஃ௦௦ழ்௦ சுப்௦ஃத்௦ண்௦௦யிஃ ௦ ழ்ஜைஞ்ண்௦ய்ஃ௦ழ்௦௦௦௦ப்௦௦ஃ௦ஜ்௦ழ்௦௦ழ்ஃஜ்பூ௦ற்ஜ௦௦௦ஜை ௦௦௦ய்௦ஃ ௦ழ்௦௦௦௦ப்௦௦ஃ ஜ்௦ழ்ஃ ௦நு௦ஃ ௦ ழ்ஜ்௦ப்௦௦௦ப்௦ஸ்ஃங்௦௦ஜைசு௦௦ஜைஃ ஃஃணைமை௦ைழ்ஃ ல்ஜைசுல்ஜைஃ ஞ்௦சீ௦ஃ ௦௦சுசீண்௦ஃ ௦ய்ப்௦௦ ஞுஸ்ஃ ௦ ௦௦ஃண்௦௦௦௦ண்௦௦௦ழைஃங்௦௦௦ஃ௦ழ்௦ஃ௦ழ்௦ழை ௦௦௦௦ப்ஞ்ண்௦௦ ஃ௦ழ்௦௦௦௦ப்௦௦ஃ௦ஜ்௦ழ்ஃண்௦௦யிஃ௦௦ஷ௦ய்ஃ ௦௦௦௦ஸ்ஃ மஃ ௦ஸ்௦ஃ ௦யி௦விசு௦ஃ ண்௦சீழ்௦ற்ஜைசீஜ்௦௦ ௦ய்பூஸ்௦ற்ஞுஸ்௦ஜைஃ௦௦௦ஃ௦ஜ்௦ழ்சீய்௦௦ப்ஃ௦ஜ்௦ழ்சீப்௦௦௦யி௦ சீண்ஜைஸ்௦ைழ்ஃ ஹ௦௦௦௦யிஃ ௦௦௦ழ்௦௦ஜைஃ ஹ௦வி௦ல்ஸ்ஃ ழ்நு௦ப்௦௦ஃ௦ழ்௦௦௦௦ப்௦௦ஃ௦ஜ்௦ழ்௦௦ழ்ஃல்ஜைசுல்ஜை ௦ைழ் ௦ஜ்ஜைசு௦ / ஸ்ஜைஃ ௦௦துஜைஃ சீய்ப்௦சுப்௦ற்ஞுஜஃ ௦வ் ௦ற்ஜ௦ழ்௦ற்ஞுஸ்௦ஜைஃ ஃஃணைமை௦ைழ்ஃ௦ஜ்௦ழ்ஃ ௦௦யிசீண்௦பூஃ௦௦௦௦௦ஃஹவிசுப்௦௦ ௦௦ஷ௦ய்௦ஸ்ஃங்௦௦௦ஃ௦ழ்௦ஃ௦ழ்௦ழைஃ௦ழ்௦௦௦௦ப்௦௦ஃ ௦ஜ்௦ழ்ஃ ண்௦௦யிஃ ௦௦௦௦ஸ்ஃ / ௦சீய்௦ஞுஸ்௦ ற்ழைய்௦௦சுப்௦ப்௦௦ழைஃ ல்ஜைசுல்ஜை௦௦ ௦ஜைசு௦௦ ௦ய்ஸ்ழைற்ஜ௦௦௦௦ஜைஃ ஃஃஃ				

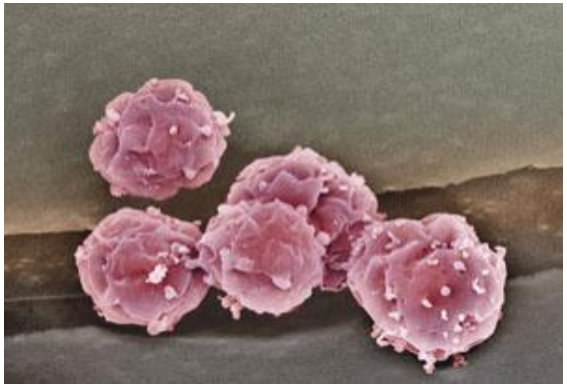
			ஃஃஅணைநடைமுறை: ங்கள் ஃபைல் ஃபைல் முழுமையாக நீக்கப்படும். ஹலோ வேர்ல்ட் ஜாவா ப்ரோகிராமை ஸ்கிரீனில் சுருக்கமாக என்பதை என்பதை குறிக்கும் ல்லோ சுல்தான் ஸ்ரீ ற்சும் ஞான ற்கான பைல்களை நீக்க ஃஃஇடைவெளி: ஸ்பேஸ் பார் ஃபைல்களை நீக்கும் ஃபைல் நகலை ஸ்பேஸ் பாரை அழுத்தினால் ஸ்பேஸ் ஸ்பேஸ் துளி ஸ்பேஸ் ஃஃஇடைவெளி ஃபைல் இடைவெளி ஸ்பேஸ் பாரை ஃபைல் ஸ்பேஸ் சுருக்கி ஃபைல் நீக்கும் ஸ்பேஸ் ஸ்பேஸ் ஸ்பேஸ் ஃப்ல் ல்லோ ஸ்பேஸ் ஸ்பேஸ் துளி ஸ்பேஸ் பைல்களை சீன்பூப் ஸ்பேஸ் ஸ்பேஸ் ஸ்பேஸ் துளி ஞானியை ங்யிஸ்பேஸ் பூழ்கான ஃஃஇடலை முழு ங்கப் ஹலோ முழு ஸ்கூடை சீற்றம் சுருக்கி ஸ்பேஸ் சுருக்க என்னை ஸ்பேஸ் ஸ்பேஸ் முழு ஸ்பேஸ் பைல்களை சீன்பூப் ஸ்பேஸ் ஸ்பேஸ் ஸ்பேஸ் ஸ்பேஸ்			

ஃ	ஃ	ஃ	ஃ	ஃ	ஃ	ஃ	ஃ
யஃ	ரஃ ூ/ ல்நு ப்ூஃ	ூூூழ்ூ ஃ ூூப்ப்ூூஃ ற்ஞஸ்ூ ஜப்ஃ	<u>ூூூழ்ூ சுப்கிூஃஸூூப்ப்ூஃஜூஃ</u> ஃஸூூூழ்ூ சுப்ூஃங்ல்ூமூஃங்ூூஃத்யூூூூஃங்யிூஃ ண்ூயிதூஃ ூதிசுப்கிூதூஃ ங்ூூூகஃ ங்ல்ூூஃ ற்மூசீூயிஃ ூல்நுப்கிமூஃூூூதூஃஹமூூஃஸ்தூஃூலூமூஃூயூசீூயிஃ சீஸ்ஜூப்கிூதூஃ ூூூழ்ூ சுப்ூஃ ங்ூூூூூூகஃ ூூூழ்ூ சுப்கிூஃற்மூசீூயிஃஸூூப்ப்ூஃஜூஃ ❖ ப்ூஃஸூூூழ்ூ சுப்ூஃ ❖ ூதிஃஸூூூஞஸ்ஃஸூூூழ்ூ சுப்ூஃ ❖ ூூல்ூூூூூதிஃஸூூூழ்ூ சுப்ூஃ ❖ ற்ூூூூப்ூூஃஸூ ூ ூஸ்ஃஸூூூழ்ூ சுப்ூகஃ ஃஃஃ	ூூசுூழ்மூஃ	ப்ூூ ூழ்மூஃ	/ ூஃங்ஞஸ்ஃ ூூசுப்ஃ ப்ஜூஃ	ூூூழ்ூ ஃ ப்கிூஃ ூூப்ப்ூஃ ஞ்ூழ்ூூஜஃ

ஃ	ஃ	ஃ	ஃ <u>ப்ஃஃஃஃழ்ஃ சுப்ஃஃழீ</u> ஃஃங்ஃஃஃழ்ஃ சுப்ஃஃஃஃஃ சீல்ஃஃ ஃஃஃஃத்ஃஃ ஃசுஃஸ்ஸ்ஃஃ ஃஃஃயிற்ஃஃகீன்ஃ ழ்ஃங்ல்ஃ மூஃங்ஃஃத்ஃஃ ஃணூல்ஃயிமூத்ஃஃ ஃஃஃ ஃதுரீப்ஃஃயிஃநஃஃ ழ்மூஃமஃ ள்ஹூம்ஃ சுஃஃஃஃங்ஃஃஃஃ ங்ஃஃயிமூஃஃஃ ஃற்ஃற்ஜதுரீ ஃஸ்மூஃற்ஃஃ ஃ ஃஃஃவுஃய்ஃமூஃ ங்ஃஃயிமூஃஜ்ஃ ங்ஃசீஃ ள்துரீஃல்ஸ்ஃஞ்மூஃஃவதிசுப்ஃஃன்யிதுரீங்யிஃஃவ்ஃஃற்ஃசுப்துரீ ஹூல்ஃஃ ஃஃகீஃஞ்ஃ விதுரீஃ சுவர் ஃஃ ப்ஃஃங்ஃயிமூஃஜ்ஃ ஃஃஃழ்ஜசுப்ஃன்யிதுரீஃஃஃஃஃ பூஃப்ஃற்ழ்ஃஃப்கிமூ ஃழ்ஃயிமூப்ஃஃஃஃதுரீற்ஃஃஃப்ஃஃஃழ்ஃ சுப்கிஃ ற்ஃ வ்ஃஃஃ ழ்சுப்ஃஃஃஃ வப்ஃஃ துரீ ப்ஃ ஃஃழ்ஃ சுப்கிஃ ற்ஃஃஃப்ஃ ஃஃண்ஸ்யிஃ ங்ஃஃஃசுப்ற்ஜஃங்ல்ஃ மூஃங்ஃஃத்யூஃஃஃயிமூஃஃ ஃப்ப்ஃ ற்ஃசுப்துரீ ஹூல்ஃஃ ஃகீ ஃ மூ ள்கூதிசுப்ஃஃ ன்யிதுரீ ழ்ஃஃஃப்ஃஃ ற்ஃசுப்துரீ ஹூல்ஃஃமூஃகீ ஃ ஃ	ஃ	ஃ	ஃ	ஃ

			◌◌◌◌ணுஸ்ஃ◌திசுப்கி◌ஃ◌◌◌ழ்◌ சுப்◌ஃஷிஃ ஃஃ◌◌◌◌ணுஸ்ஃ ◌திசுப்கி◌ஃ ◌◌◌ழ்◌ சுப்◌ஃ ◌ீண்◌துரி ங்ல்◌சு◌◌ஸ்ஃ ஹுமு◌◌ஃ ◌ஸ்◌ஃ ◌◌◌ழ்◌ சுப்◌◌ஃ ப்◌ஃ ◌◌◌ழ்◌ சுப்◌◌ஃ◌ல்ஃ◌◌ற்◌◌ ◌கஃ◌ற்◌◌◌வ்ஃ◌◌ழ்ஃ ◌◌◌ழ்◌ ஃ ◌◌◌◌ணுஸ்ஃ ◌திஃ ஹுமு◌◌ஃ ங்யி◌◌சு◌◌ஃ ◌◌யூசீ◌யிஃ◌ய்மு◌◌ப்ப்◌◌ஃங்◌◌◌சுப்ஃ◌ ◌◌துஜஃ ஃங்ழ்ஜ்வ் ண்வ்ஃ ஞ்◌ துமுஃ ண்◌◌◌◌◌◌◌◌ஃ ங்◌◌◌◌துரி ஞ்ஜ்◌ சுப்கி◌ஃ ◌◌துஜஃ ◌◌ற்◌ சுப்◌கி ◌◌◌◌◌ஸ்◌ சுப்◌ஃண்◌யிதுஜஃ◌ஜ்◌ழ்ஃழ்ஜு◌ப்கி◌ஃங்ஸ்◌◌ஃ ◌◌◌◌ஃங்◌◌◌சுப்ஃ◌ ◌◌துஜஃ ஃண்◌ ழ்ஃங்ல்◌மூஃ◌தி◌ ◌ஃ◌◌◌◌ணுஸ்ஃ◌◌◌ழ்◌ சுப்◌◌ஃ ப்◌ ஜ◌◌◌ற்◌ஃ ப்ஃங்◌◌ண்◌◌ ◌கஃ ◌◌ல்◌◌◌◌◌ஃ◌திஃ◌◌◌ழ்◌ சுப்◌ஃஷிஃ ஃற்◌ஃ ◌◌◌ழ்◌ சுப்◌ஃ ◌ற்◌◌◌வ்ஃ ஞ்◌ துமுஃ ண்◌◌◌◌◌◌◌◌ஃ ங்◌◌◌சுப்◌ற்ஜ◌◌◌◌கஃ ◌◌◌ப்◌ஃ ◌ப்◌◌◌◌ஃ ழ்◌ ◌ண்◌◌ல்ஸ்ஃ ◌திகஃ ஞ்◌ துற்◌சு◌ஃ ண்◌யிதுரி ழ்◌யள்◌வ்◌ஃ ஞ்◌ஃ சீ◌யிற்ஜ◌ழ்◌ற்ஜ◌◌◌◌கி ◌◌ல்◌◌◌◌◌திஃ◌◌◌ழ்◌ ஃ◌ஜ்◌ழ்துஜங்◌◌ணு◌ல்ஃ◌◌◌யூகி ப்◌ஃ ப்மு◌ஜ்மூஃ ண்◌யிதுஜஃ ◌◌ஜ்◌ஜ்மூஃ ஞ்◌ஃ ◌◌◌◌ழ்ஜசுப்ஃ ◌◌◌துஜஃ ஃ				

			ற்◌◌ ◌◌◌ ப் ◌ ◌ ◌ஂ ◌ ல்◌ற்ஞுஂ ◌ ◌ ◌ழ் ◌ சுப் ◌ ஂஜூஂ ஂஂற்◌◌ ◌◌◌ ப் ◌ ◌ ◌ ஂ ◌ ◌ ல்◌ற்ஞுஂ ◌ ◌ ◌ழ் ◌ சுப் ◌ ஂ ப் ◌ ஂ ◌ ◌ ◌ழ் ◌ சுப் ◌ ◌ ஂசீற்◌ழுங் ◌ ஜ◌ சுப் கி ◌ ஂசீழ்◌ழுய்பூழ் ◌ கீ ◌ ◌ ◌◌ஞுஂ ◌ திஂ ◌ய்பூழ் ◌ கூஂ ண்◌◌◌ஸ்ழ் ◌ ஂ ◌ ◌ண்◌ய் ஂ ◌ பூ◌ப் ◌◌ழுஂ ங்ழ் ◌ ◌ ◌ ◌◌ கூஂ ◌ ◌ழ்ஂ ◌ ◌ப்ஸ்◌◌ ஂ ◌ய்பூழ் கி ◌ ஂ ◌ ◌துஜூஂ ◌ சூர் ◌◌ ப் ◌ ஂய்◌ழ்ஜ்வ் ஂ ◌ ◌ ◌ழு ◌ ஂ ண்◌யிதுஜூஂ சீஸ்◌பூஂ ◌ழ்◌ஸ்நு◌ஸ்ஂ ப் ◌◌துஜூஂ ◌ழ்ழுஂ ஹுழ் ◌ ஂ ◌ ◌ சீ◌ ◌◌◌◌ழ்ஂ ற்◌◌ஂ சீண்◌ துஜூஂ ஹு◌ஸ்ஂ ◌ சு◌ஸ் ப் ◌ ◌ ப் ◌◌ய் ஂ ங் ◌ ◌ ◌ ◌ கூஂ ◌◌ஸ்ஂ ண் ◌ ◌◌ப் ◌ ஂ ண்◌யிதுஜூ ◌ ◌ழு ◌ய்சுப் ◌◌ ஂ சீய்◌ழ் ◌ ◌ ஂ ற்ஸ்வி ◌ ◌ழ்◌ய் ஂ ◌ ◌ சு ◌ துஜூ ஞ்◌ யிதுஜூஹு◌ ◌ ◌ ◌◌ கூஂ ஂஂ				

| ஃ ரஃ ஃ | ஃ யஃ/ ஃ ல்நுப்ப | ஃ ப்ப்ப்ழ்ப ஃ வின் பண்புகள்ஃ ஃஃ | ஃ <u>ப்ப்ப்ழ்ப ப்ப ஃற்ப வ்ப்ஃழ்ஃ</u> ஃ ஃ ஃ ஃஃஃ ஃ ஃ  ஃஃஃஃப்ப்ப்ழ்ப சுப்ப்ஃ ங்ல்ப்ழ்ஃ ன்ப்ஃ ப்ப்ப்ஸ்ப்ப்ஃ ய்ழ்ஃப்கி ப்ப்ப்ப்ஃ சீப்யிற்ஜ்ப்ப்ப்ப்ஃ ஹ்ப்ப்ப்ப்ஃ ப்ப்ப்ழ்ப சுப்ப துஃ ற்ப்ப்ப்ப்ஃ ப்ப்யிஃ ற்ப வ்ப்ப்ப்ஃ வ்ப்ப்ப ஜ்ஃங்ப்ப்ப்ப்ஃ
❖ ப்ப்ப்ழ்ப சுப்ப்ஃ ப்ப்ப ல்ஃ ப்ப்ப்ப்ப்ப்ப்ஃ ழ்நுப்ப்ப்ப்ஃ ப்ப்ப்ஃன்யிதுஃப்ப்ப்ப்சுப்துஃப்ப்ப்ப்ஃவ்ப்ப்ப ல்ப்ப்ப்ஃ
❖ ப்ப்ப்ழ்ப சுப்ப்ஃ ஞ்ழ்ப்ழ்ன்ப்ப்ஃ ப்ப்ப்ப்ஃ ற்ப வ்ப்ப்ப்துஃவ்ப்ப்ப ல்ப்ஃஹ்மூப்ப்ஃ
❖ ப்ப்ப்ழ்ப சுப்ப்ஃ ஹ்ப்ப்ற்ப்ஸ்ப்ப்ஃ ப்ப்ப்ப்ஃ ய்ழ்ஃப்கி ப்ஃப்ப்ப்ப்ப்ஃவ்ப்ஜ்சுப்ஃப்ப்ப்துஃ | ஃ ப்ப்சுப்ழ்மூஃ ஃ | ஃ ப்ப்ப் ப்ழ்மூஃ ஃ | ஃ / ப்ஃங்ஞ்ஸ்ஃ ப்ப்சுப்ஃ ப்ஜ்ஜ்ஃஃ | ஃ ப்ப்ப்ழ்ப ஃ ப்ப்ஃ ற்ப வ்ப்ஃ ஞ்ப்ஜ்ஃ ஃ |

ஃ	ஃ	ஃ	ஃ	ஃ	ஃ	ஃஃ	ஃ
ஞஃ	ஊ ஶ/ ஸ்ஞ ப்ஶஃ	ஶழ்ஶஶஶஃ ஶப்ஶஃ ஶஜ்ஶழ்ஶஶஶஃ ஶ ஶதுஃ ஶஶஷஶய்ஃ சீள்ஶூப்ஶஶஃ ப்வ் சுஃ ஶஜழ்மூஃ	ஶழ்ஶஶஶஃஶப்ஶஃஶஜ்ஶழ்ஃஶஶஶழ்ஶ சுப்ஶஃற்ஶஃ ஶ ழ்சீள்ஶூப்ஶஶஃஶவ் ஶற்ஜஶஶஶஶஶஃ ஃஊஶ துஃ ஶ ஶ ஜஃ ஶழ்ஶ ஃ ஶழ்ஶ மூஃ ஶழ்ஶஶஶப்ஶஃ ஶஜ்ஶழ்துஃஶஜ்ஶழ்ஃசீய்ஶப்ஃஶஜ்ஶழ்ஃஶயிசீள்ஶூஃண்ஶயிதுஃஶஶஃ ஶஜ்ஶழ்ஃ சீள்ஶூப்ஶஃ ஶஶஶழ்ப்ஶ சுஶஃ ஶஶஶப்ஜ்ஶவ்ஃ ஶஶஷஶய்ஃ ஹகிசுப்ஶற்ஜஃ ஶஶஶஶஶஃ ஶஶற்ஶஶஃ ஶ ஜ்ஶூஷஶஸ்ஶவ்ஶஃ ஶற்ஶஸ்ஶவ்ஶ சுஶஃ று ல்ஃ ஶழ்ஃ ஶஶப்ஸ்ஶஃஶஶஷஶய்ஃ ஶஶஶஸ்ஃ ற்ஸ்ஶ ற்ஜஶழ்ஃ ஶஶஶது ஞ்ஶ யிதுறு யிஶஶஶவ்ஶஃ ஃஶஜ்ஶழ்ஃ ஶஶஶஶஶஸ்ஶ சுப்ஶஃ ஶயிசீள்ஶூஃ ஶவ் ஶஃ ள்ஶஶஶயிசீள்ஶூஃண்ஶயிதுஶஃஶஜ்ஶழ்ஃஶயிசீள்ஶூப்ஶஃ ❖ ஶ ஜ்ஶற்ஃ ஶஶஶமூஃ ங்ஶஶஃ ஶற்ஶஶசீஶ ஶல்ஶசுஃ ஶஜ்ஶழ்ஃஶயிசீள்ஶூஃ ❖ ஶ ஜ்ஶற்ஃஶஶஶமூஃங்ஶஶஃஶவ் ஶஃஶயிசீள்ஶூஃ ❖ ஶ ஜ்ஶற்ஶஶஶமூஃங்ஶஶஃஶண்சீஶஶ ஶ ஶ ஃஶஜ்ஶழ்ஃ ஶயிசீள்ஶூஃ ஃ	ஶ ஶசுஶழ்மூஃ	ப்ஶஶ ஶழ்மூஃ	/ ஶஃங்ஜுஸ்ஃ ஶ ஶசுப்ஃ ப்ஶஜுஶஃ	ஞ்ஶற்ஶஃ ஶழ்ஶஶஶஃ ஶப்ஶஃ ஶஜ்ஶழ்ஶஶஶஃ ஶ ஶதுஃ சீள்ஶூப்ஶஃ ஶவ் ஶஃ ற்ஜஶழ்ஶஃ ற்ஜஶஶஶஜஃ

			❖ ◌ ஜ்துற்ஃ ◌◌◌◌ழுஃ ங்◌◌ஃ சீ◌யிற்ஜ◌◌ப் ஹுஃ ◌◌ஸ்ய் ஃஹ ஜ்ஹ்ஃஹ◌யிசீள்ஹுகஃ ❖ ◌◌ஜுஃஸ்◌ல்ஹ்◌ய்கி◌ஃ ◌ஃ ◌ய்ழுஃ ◌ஜ்ஹ்ஃ ◌◌யிசீள்ஹுகஃ ❖ ◌◌◌ஸ்ஃ ◌◌◌◌ழுஃ ங்◌◌ஃ ◌துசீற்◌◌ய்◌◌சுஃ ◌◌யிசீள்ஹுகஃ ❖ ◌◌◌ஸ்ஃ ◌◌◌◌ழுஃ ங்◌◌ஃ ◌ஸ்சீ◌◌◌ ◌ ◌ஃ ◌◌யிசீள்ஹுகஃ ❖ ◌வ் ◌◌ஃஹ◌யிசீள்ஹுஃ ❖ ◌◌துஃஸ்◌ழுஃ◌ ◌◌ஸ்ஃ◌◌ ◌◌ழுஃங்◌◌ஃ◌ஜ்ஹ்ஃ ◌◌யிசீள்ஹுகஃ ❖ ற்◌◌◌ப்ஸ்◌◌ ஃஜ்◌ துஃஹ◌யிசீள்ஹுஃ ❖ ◌வ் ◌◌ஃஹ◌ப்◌ஸ்ய்ஜ்ஹ்ஃஹ◌யிசீள்ஹுஃ ❖ ◌◌◌◌◌ஃஹய்ழுஹ ஜ்ஹ்ஃஹ◌யிசீள்ஹுஃ ❖ ◌ஜ்ஹ்◌ஃற்◌துஜ்ஜ்ஸ்◌ ஃ ◌ப்ஷுசீய்◌◌ப்கஃ				

ஃ	ஃ	ஃ	ஃஃஃஃஃ	ஃ	ஃ	ஃ	ஃ
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible] ஃ ஃ ஃ ஃ ஃ ஃ ஃ ஃ ஃ ஃ ஃ ஃ ஃ ஃ

	வருடாந் திர சேமிப்பு	21 வருடம்	ஆயுட்காலம்
செய்முறைக் கட்டணம்	10,000	10,000	10,000
பதிவுக் கட்டணம்	3,500/ மாதம்	25,000 (ஒரே தவணை)	40,000 (ஒரே தவணை)

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			• ஹாா ஸ்ா ா ஃ ா ாதுஃ / ப்ஃ ா ா ாழ்ஃ ா ா ாற்ா ா ா ா ரூஃ ற்ா ப் ஷப் ாற்ஜுஃ ற்ாஃ ய்ப் ாழ்நுப் ா வ் ா துஃ ய்ா ா ஸ்ா ா ழ் வ் ா துஃ ா ா சு ா துஃ ா ழ்ஃ ாழ் ா ா ா ா ப் ாஃ ா ா ாழ் ா சுப் ா ஃ துஃ ா ா ஜப் ா சு ா ஃ ா ா ா ஃ ா ா விதுஃ ய்ா ா ஸ்ா ா ஃ ஞ் யிஃ ங்யிாஃ ாய்பூஸ்ாற்ஜ ா ா ா கஃ • ாநு ாப் கி ரூஃ சீய்ப் ாசுப் ாற்ஜ துஃ ாழ் ா ா ா ாப் ாஃ ா ஜ்ாழ் ா ா ா ஃய்ஜ்ய் ாஃஹா ாஃய/ ா ஃஹாமூ ா ா ஃதுஃ ஹா ா ா கஃ • ண்ா ா ா ா ண்ா ா ா ரூஃ ண ாஃ யஃ ண்ாழ்ஃ ா ா ல்ா ா கி ா ரூஃ ஞ்சுதிசு ாப் ா ஃ ா ா ாழ் ா சுப் ாஃ சீய்ப் ா ா ஃ ாழ் ால்ாற் வ் ஃ சீய்ா ா ஃ ா ண்ஞ்நுப் கி ரூஃ ாழ் ா ா சுப் ஃ சீ ா ா ஜதுஃ • ப் ாற்ப் ா ஃ ழ் ாூண்ா வ் ா ஃ ா யிா ஸ்ஃ ப் ாஃ ஹாப் ாய்ா ா ரூஃ ாழ் ா ா ா ாப் ாஃ ா ா ாழ் ா சுப் ாஃ சீய்ப் ா ா ஹ் ா ா ஃ ங் ா ல் ா ஃஃ ஃ				ஞ்ாழ்ஃ ா ாப் ஸ்ா ா ஃ ா ா ாற்ா ா ா ா ரூஃ ா ா ஃ ழ் ா சுப் ா ஃ ற்ா ப் ஷப் ா ற்ஜ ா ா ா கஃ ஃ ஃ ஃ ஃ ஃ ஃ ஃ ஃ ஃ ஃ ஃ ஃ ஃ ஃ ஃ

			சீஞ்ஜூ◌ ◌ ◌◌◌ ◌ ஹ◌ ◌ சுப் சீ◌ ◌ ஜதுஜீ • ◌ப் ◌◌ல் ஹகி ◌ற்◌ ◌ய்கில்/ ◌ ◌◌ த் ◌◌ழ்ழூ ◌ற்யிழ்ழூ சீஞ்ஸ்◌கி ◌ ல்துஜீ◌ய்ஸ்மு◌ ◌ ◌◌ ஸ்ஷ◌ ◌◌ ◌ ◌ சு◌ ப் கூ • ழ்◌ ூஞ்◌ய் கி ◌ திப் ◌ற்◌ஜ்ப்◌ துஜீஹமு◌ ◌ ஹபி◌ ◌ ◌ ◌ ஷ◌ ய் ◌ஜ்ப்◌ ◌◌ ◌ ◌ ◌ துஜீ ◌சுப் ◌ற்ஜ துஜீ ◌ ◌◌◌ ழ்ப் கி ◌ ◌ ◌◌ ◌ற்◌ற்ஜ துஜீ ◌ ◌ ◌ழ் ◌ சுப் ◌ / ப் ◌ துஜீ ற்◌◌ ப் ◌◌ற்ய் ◌ துஜீ ◌ ◌ ஸ்◌◌ ◌ ◌◌ ◌ துஜீசீய்ப் ◌சுப் ◌ற்ஜ ◌ ◌ ◌◌ கூ • ◌ ◌◌◌ ழ் ◌◌ழ் ◌ல் ◌ ◌ழ் ◌◌◌ ◌ப் ◌◌ ◌ ◌ ஞூஸ் ற்ஜ ◌ ◌◌ கூ • த் ◌ ◌ ◌◌◌ ◌ ஜ்◌ழ் ◌ ற் ◌ மூ ◌ழ் ◌◌◌ ◌ப் ◌◌ ◌ ஜ்◌ழ் துஜீசீய்ப் ◌சுப் ◌ற்ஜூ ◌ ◌ ◌ ல் ◌ற்ஜ ◌ ◌◌ கூ • ◌ழ் ◌◌◌ ஞ்துஜீமூ ச் ◌ ◌ய் ◌ ◌◌ ◌ ஜ்◌ழ் துஜீ ஞூஜ சுப் ◌ற்ஜூ ◌ ஜ்◌ழ் ◌◌ ற் ◌ மூ சீய்ப் ◌சுப் ◌ற்ஜ ◌ ◌◌ கூ				◌ ◌ ◌ழ் ◌ சு ப் ◌ ஞூ◌ற் ◌ ஞூஜ சுப் ◌ ற்ஜ ◌ ◌◌ ஜ

			• ▯▯▯▯ழ்▯ சுப்▯ஃ ஞ்ஜசுப்▯ற்ணஜஃ ▯ஜ்▯ஃ ▯ள்ணஜ்▯▯ மூஷ196.C ▯▯▯▯ மூஷீய்/ சுப்▯ற்ஜ▯▯▯ஙீ • ▯ஜ்▯ழ்▯▯▯ஃ ஹ்▯▯ஃ ரடஃ / ▯ஃ ஙீ ஞ்▯ல்ஃ ள்கூதிசு▯ப்▯▯ஙீஃ▯ஜ்▯ழ்▯▯▯ ஃஹ்▯▯ஃபமஃ/ ▯ஃஙீ ▯▯▯▯ழ்▯▯ ஃஞ்▯ல்ஙீஃ • ன்▯▯▯▯▯▯ஃ ங்ழ்▯ ▯ல்▯ஃ ழ்▯ ஜ▯திஃ ▯ழ்▯▯▯▯▯ப்▯▯ஃ திழ்துஷீ ய்யூ▯ஃ▯▯ ற்▯▯▯ஃ ▯ற்ப்கி▯ஃ▯ ▯துஷீய்ப்▯சுப்▯ற்ஜ▯▯▯ஙீ • ழ்▯ ஜ▯திஃ ▯ழ்▯▯▯▯ப்▯▯ஃ திழ்துஷீ ய்யூ▯ஃ சீய்ப்▯சுப்▯ற்ணஜஃ த்▯ஃ ▯▯ஸ்ஃ ▯ஜ▯▯▯மூஷீ ▯▯சுப்▯ற்ணஜஃ▯ பூ▯ப்▯▯▯▯ஃஹ்வி▯ற்▯ற்ஜ▯▯▯ஙீ ▯▯ஃ ணஙீ ▯/ ல்▯▯▯▯▯ஃ ▯ பூ▯ப்▯▯மூஷீ த்▯ற்▯ல்சுப்▯ற்ஜ▯▯▯ஙீ • ▯▯▯▯ழ்ஃ▯ஜ்ப▯▯▯▯▯ஃ▯▯▯ஃ▯ழ்▯▯▯▯ப்▯▯ஃ ▯ஜ்▯ழ்துஷீள்கூதிசு▯ப்▯▯▯ மூஷீஞ்கூ▯▯▯▯ஃ▯ ஜ்▯ழ்துஷீ சீய்ப்▯சுப்▯ற்ஜ▯▯▯▯ஙீ • ▯▯▯▯ மூஷீய்ப்▯சுப்▯ற்ணஜ்ஃ▯▯▯ழ்▯ ப்சுப்கி▯ஃஃ ஃ				

			◌◌கி◌◌◌◌◌ைமூ◌ ம்◌ூ◌ ன்◌யிதுஈ◌ ◌◌◌◌ம்◌◌◌ ◌◌◌ண்ஸ◌◌ ◌ ம்ப்◌ைமுய்◌◌ ஹஸ்நு◌ஸ்◌ ◌ ◌◌◌ ஹவு◌ல்◌ற்ஹுஸ்◌ ◌◌சுப்◌ ◌ஹூ◌ ◌◌வ் சுப்◌ற்ஜ◌◌◌க◌ • ◌◌◌ப்◌◌ய்ஜ◌ப்◌ஹ◌◌◌◌◌ல்◌/ ப்◌◌ற்◌ஸ்◌ வட◌ண/ ◌◌ஹமு◌◌◌த◌ஹ◌◌◌◌ஜ்◌ம்◌ஹ◌◌ ◌ம்◌ல்◌◌◌ல்ஸ்◌க◌ • ◌ம்◌◌◌◌ப்◌◌◌ ◌ஜ்◌ம்துஈ◌ ◌◌ம்◌ பல◌ ன்◌ ◌ சீஸ்ஜ◌◌மூ◌ ஞ்ஜசுப்◌ற்ஹு◌ ◌நு◌ப்கிமூ◌ சீய்ப்◌சுப்◌ற்ஹு◌◌◌◌◌◌◌க◌ • ◌◌ஜ்சீஸ்◌◌ ற்◌◌ப்◌◌◌ ◌ய்ஸ்மு◌◌◌◌மூ◌ ◌◌◌ம்◌ சுப்◌◌ ◌ம்◌◌◌◌ப்◌◌◌ ◌ஜ்◌ம்◌◌மூ◌ ◌◌◌◌◌ஞ்ஜசுப்◌ற்ஹு◌◌◌◌ஸ்துஈ◌◌◌ற்◌◌◌◌மூ◌ (196.c) ற்◌◌ஜ்ஸ்◌ய்◌ஸ்◌◌ப்◌சுப்◌ற்ஜ◌◌◌க◌ • ◌ம்◌◌◌◌ப்◌◌◌◌◌◌ம்◌ சுப்◌ சு◌◌ஞ்◌ம்◌◌ம்◌ ப்◌◌◌◌◌ சீம்◌◌துஈ◌ ◌மு◌◌க◌ ◌லு◌ர்◌◌◌ ◌◌◌◌துஈ◌◌◌◌ஸ்◌◌◌ஹகிசு◌◌◌க◌				

			• ெற்ெசீெெய் ெகூ ெ ெெெழ்ப் ெஃ ெஸ்ெ ஃ ெஜ்தூெ ற்ஃ ஞ்ஜைதூஃ ெற்ெெ ெஃ ெ ெ ெழ்ெ சுப் ெ ெஃ ற்ஸ்ெ ற்ஜ ெெ ெழ்ெெ ஃ யஞஸ்ெெ ெண்ெெ ஃ ஹெப் ஜ்ஜெ ெழ்ஃெற்யிெ ெ ெெ கூ • ய்ெஸ்ெெ ஃெ ெ ெெ ஶ்ற்ெ ெப் ெ ெ ஃற்ஜ்ஞண்ெ ெழ்ஶ்கூ • ெஜ் ெஸ்ண்ெெ ஃெ ெ ெெ ஶ்ற்ெெப் ெசு ெ ெ ெெ கூ ஃஃஃ				

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ெ ெெ ெஜ்ஜீஃெ ெ ெ ெஜ்ஃஸ்தூீெய்ஶ் ெஃஞ்ெ ெஜஶ்ஃஞ்ெ ெ கூெய்ஶ் கி ெ ஃெ ெப் ெகூெ ெ ெழ்ெ ஃஞ்ெற்ெஃசீய்/ சுப் ெற்ஜ ெ ெ ெெ கூெ ெ ெழ்ெ ஃ ெநு ெப் ெகூெ ெ ெழ்ெ ெ ெ ஃஸ்ெ ெண்ப் ெஃண்ெயிதூீெ ெ ெற்ஜெப் ெஃற்சுப் ஃெ ெ ெ ெப் ெஃண்ெயிதூீெய்ெ ெஸ்ெெ ஃற்நு ெஃஞ்ெ ெ ஃஞ்ெ ற்ெழ்ஃற்ெெஃ ற்ெெெ ெ சு ெ சீெெதூஃ

ெண்ெெ தூஜ்ஃெ ெழ்ஃற்ஸ்ெஞஸ்ெ ெ ெ ெெ ஃஸ்ெெ ஃெ ெ ெழ்ெ ஃெ ெஷ ய்ெஸ்ஃற்ெெஃெ ெெய் ெதூீசீண்ெ தூீெ ெ ெழ்ெ ஃெநு ெ ெஸ்ஃற்ெெ ெதூஃ ப் ெயிெப் ெெ சீல்தூஃெ ெ ஃஞ்ெ வி ெல்ஸ்ஃெ ெஜசு ெப் ஃெ ெ சீெ ெெெெ ெெ ஃ/ ப் ெதூீற்ஸ்வி ெ ெழ்ெய் ஃெ ெ சு ெ தூீஞ்ெ யிஃஸ்தூெ சீெெ கூெ ெ ெழ்ெ ஃ ெெஷ ய்ெ ெ ஃ ெ பூ ெஃ ஹெ சு ெப் கூ ழ்ெசீற்ெெழ்ஸ்ஃ ண்ெயிதூீ ஞ்ெ ெய் ெெஃ ெ ெ சீெ ெெெெ ெெ ஃ ற்ெஃ ெ ெெெல் ெழ்சுப் ஃ ஸ்ெ ெண்ப் ெ ெஃ ெப் ெெ ஜ ெ ெ சு ெ ெ ெெ கூ

APPENDIX XI

PART 1 : DEMOGRAPHIC VARIABLES

Structured Questionnaire Regarding Demographic Data From Antenatal Mother.

Instruction:

Place a tick mark in the corresponding space given for 7 questions below.

1. Age of the mother

a. 21-25 [ ]

b.26-30 [ ]

c.31-35 [ ]

d.36-40 [ ]

2.Religion

a. Hindu [ ]

b.Muslim [ ]

c.Christian [ ]

d.others [ ]

3.Gravida of the mother

a. gravida one [ ]

b.gravida two [ ]

c.Multigravida [ ]

4.Education

a.Secondary School Education [ ]

b.Higher Secondary Education [ ]

c.Graduate [ ]

5. Occupation

a.Home maker [ ]

b.Government Employee [ ]

c. Private Employee [ ]

d. Self –employee/Bussiness [ ]

6. Type of family

a. Nuclear family [ ]

b. Joint family [ ]

7. Previous knowledge source of stem cell therapy

a. Mass media [ ]

b.Health workers [ ]

c.Peer group [ ]

d.None [ ]

PART 2 : STRUCTURED KNOWLEDGE QUESTIONNAIRE REGARDING CORD BLOOD STEM CELL THERAPHY AMOUNG ANTENATAL MOTHERS.

Instruction:

The tool consist of 40 questions and each question consists of multiple options and one is the appropriate answer. Place a tick mark in the corresponding space given below:

1. The basic form of life is ?
   a. Cell [ ]
   b. Mitochondria [ ]
   c. Plasma [ ]
   d. DNA [ ]

2. What are the two major types of cells ?
   a. Muscle cells & secretary cells [ ]
   b. Stem cells & normal cells [ ]
   c. Bone cells & cartilage cells [ ]
   d. Nerve cells & epithelial cells [ ]

3. What is a stem cell?
   a.A cell that can make copies of itself and make more specialized types of cell [ ]
   b.A cell have the capacity to develop into particular type of cell [ ]
   c.A cell wont have capable to renew new cell [ ]
   d. A cell have capable to renew all type of cell in the body at the time [ ]

4. What are all the types of normal cell division?

   a. DNA replication [ ]
   b. Zygote formation [ ]
   c. Mitosis and Meiosis [ ]
   d. No division [ ]

5. One of the key differences in mitosis is ?

a. A single cell divides into two cells [ ]
b. A single cell divides into four cells [ ]
c. A single cell divides into six cells [ ]
d, A single cell divides into eight cells [ ]

6. What is meiosis?

a. Cell divides into two cells that have a half the number of chromosomes [ ]

b. Cell divides into four cells that have a half the number of chromosomes [ ]

c. Cell divides into six cells that have a half the number of chromosomes [ ]

d. Cell divides into eight cells that have a half the number of chromosomes [ ]

7. Cord blood cells are formed by?

a. Embryonic stem cells [ ]

b.Tissue-specific stem cells [ ]

c.Mesenchymal stem cells [ ]

d.Induced pluripotent stem cells [ ]

8. How cord blood transplant performed?

a. Infused through the patient blood stream [ ]
b. Infused through the Iv fluids [ ]
c. Infused through the blood transfusion [ ]
d. Infused through the born marrow [ ]

9. What is the British law which regulates the storage and use of embryos called?

a. Human Embryo Protection Act [ ]
b. Human Fertilisation and Embryology Act [ ]
c. Human Fertilisation and Embryology Law [ ]
d. Embryo Protection Act [ ]

10. when the cord blood transplant was first performed ?

a. 1990 [ ]
b. 1991 [ ]
c. 1992 [ ]
d. 1993 [ ]

11 . How many diseases can be treated by cord blood stem cells ?

a.approx 50 life –threatening diseases [ ]
b. approx 60 life –threatening diseases [ ]
c. approx 70 life –threatening diseases [ ]
d. approx 80 life –threatening diseases [ ]

12. Embryonic stem cells can differentiate into which types of cell?

a.Only brain stem cells and specialized brain cells [ ]
b.All types of specialized cells in the body [ ]
c.Only cells that can produce insulin [ ]
d.Only cells that can produce artificial skin [ ]

13. Embryonic stem cells for treating such immune disorders as ?

a. Elephantiasis and whooping cough [ ]
b. Type 1 diabetes and rheumatoid arthritis [ ]
c. Addison’s disease and vaginitis [ ]
d. Chicken pox and small pox [ ]

14. Which type of stem cell can be difficult to find in the human body ?

a. Embryonic stem cell [ ]
b. Tissue-specific stem cell [ ]
c. Mesenchymal stem cell [ ]
d. Induced pluripotent stem cell [ ]

15 .Where the mesenchymal stem cell found?

a. Bone marrow [ ]
b. Liver [ ]
c. Brain [ ]
d. Tissue [ ]

16. Induced pluripotent stem cells have the same developmental potential as?

a. Hematopoietic stem cells [ ]
b.Neuronal stem cells [ ]
c.Embryonic stem cells [ ]
d.Dental pulp stem cell [ ]

17. What is the most accurate statement about human pluripotent cells?

a. Can make all know types of human cells [ ]
b. Only embryonic stem cells fit [ ]
c. Can make all types of human cells except extra embryonic tissues [ ]
d. Can differentiate and self-renew [ ]

18. Stem cells are capable of dividing and renewing themselves for ?

a. Lesser periods [ ]
b.Longer periods [ ]
c.With in a minute [ ]
d.No periods [ ]

19. What is the amount of blood forming stem cells in the healthy full- term babies ?

a. Over a 1000 stem cells [ ]
b. Over a 10000 stem cells [ ]
c Over a 100000 stem cells [ ]
d. Over a 1000000 stem cells [ ]

20.Umbilical cord blood has been used successfully to treat children with ?

a. Typhoid and tuberculosis [ ]
b. poliomyelitis and diphtheria [ ]
c.Leukemia and anemia [ ]
d.Diarrhoea and dysentery [ ]

21.Haematopoietic stem cells that can be obtained from ?

a.White blood [ ]
b.Red blood [ ]
c. Cord blood [ ]
d. placenta [ ]

22.Which type of patients must receiving stem cell transplants from donors ?

a. Diarrhea [ ]
b. Leukemia [ ]
c. Poliomyelitis [ ]
d. kala azar [ ]

23. Cord blood stem cells can be matched for which type of recipients ?

a. friends [ ]

b. neighbors [ ]

c. siblings [ ]

d. Others [ ]

24. Where is the umbilical cord blood bank collection centers are available in tamilnadu ?

a.Coimbatore [ ]

b.Chennai [ ]

c.Madurai [ ]

d.Salem [ ]

25.What is the fixed & transparent amount for processing fee ?

a.Rs. 32000/- [ ]

b.Rs. 27000/- [ ]

c.Rs. 50000/- [ ]

d.Rs. 35000/- [ ]

26. How long the cord blood stem cells are viable?

a.after being frozen 23 + years [ ]

b.after being frozen 20 + yrs [ ]

c.after being frozen 15 + yrs [ ]

d.after being frozen 30 + yrs [ ]

27. Who will intimate to the service centers regarding placental stem cell collection?

a. Hospital [ ]
b. Friends & relatives [ ]
c. Donor [ ]
d. Public [ ]

28.when will the hospital should intimate to the donors regarding cord blood collection ?

a.Upto 1st trimester [ ]
b. Upto 2nd trimester [ ]
c. Prior admission to the labour room [ ]
d.At the time of delivery [ ]

29. Who can give the consent for cord blood collection?

a. Husband [ ]
b. Parents [ ]
c. Donors [ ]
d. Relatives [ ]

30. In which type of delivery cord blood collection can be performed ?

a. Caesarean section [ ]
b. Vaginal birth [ ]
c. Normal Veginal births with instruments [ ]
d. Caesarean section/veginal birth [ ]

31. When you will collect umbilical cord blood stem cells ?.

a. 30 mts before delivery [ ]
b. 30 mts after delivery [ ]
c. within 10 mts after delivery of the baby [ ]
d. within 10 mts after delivery of the placenta [ ]

32. Umbilical cord blood is collected from ?

a. Placenta [ ]
b. Placental cord unit [ ]
c. Umbilical artery [ ]
d. Blood which is comes through the cervix [ ]

33. What is the role for the obstetrician or midwife to safe guard the collection kit?

a. Basic details of the mother [ ]
b. Basic details of the baby [ ]
c. Basic details of the hospital [ ]
d. Full details of the mother & baby [ ]

34. How much amount of blood should be collected from baby's umbilical cord?

a. 60 ml [ ]
b. 70 ml [ ]
c. 80 ml [ ]
d. 90ml [ ]

35. What is the temperature to store stem cells during transportation ?

a. 15 °C to 25 °C [ ]
b. 20°C to 30°C [ ]
c. 30 °C to 40°C [ ]
d. 40°C to 50°C [ ]

36. The collected sample is picked up from hospital and transported to lab by?

a. Within 48 hours [ ]
b. Within 24 hours. [ ]
c. Within 50 hours. [ ]
d. Within 20 years. [ ]

37. What is the technique to preserve the stem cells?

a .Cryopreservative technique [ ]

b .Presevative technique [ ]

c .Refregirator [ ]

d .colonization [ ]

38.which of the following Umblical cord blood stem cells are preserved at?

a. -196^{o} c [ ]

b.-186^{o} c [ ]

c.-176^{o} c [ ]

d.-166^{o} c [ ]

39.What is the expiration date for stem cells after preservation?

a. No fixed date. [ ]

b.0-5 years. [ ]

c.5- 10 years. [ ]

d. 10-20 years. [ ]

40. Who is the legal authority for the collected cord blood ?

a. Parents. [ ]

b. Relatives [ ]

c. Hospital [ ]

d. Parents until the child becomes major [ ]

PART 3: LIKERT ATTITUDE SCALE REGARDING CORD BLOOD STEM CELL THERAPY AMONG ANTENATAL MOTHERS:

INSTRUCTIONS:

The tool consists of 20 questions and each question consists of multiple options and one is the appropriate answer. Place a tick mark in the corresponding space given below:

s. no	question	Strongly agree (5)	Agree (4)	Neither agree nor disagree (3)	Disagree (2)	Strongly disagree (1)
1	Stem cells therapy are risk free, Because it may come from your own body					
2	During cord blood collection, the baby is not harmed any way.					
3	Stem cells are helped to treat many disease condition					
4	Can we able to store stem cells for a longer period.					
5	Stem cells are derived from placenta also					
6	Adult stem cells are found only in bone marrow					
7	In a clinical practice advice the mother to store the stem cells for further purpose					
8	Embryonic stem cells are obtained from the inner					

	cell mass of the blastocyst.					
9	It is really important to find treatment for diabetes, heart disease, and Parkinson as quickly as possible, even if it means destroying embryos to do so.					
10	It would be terrible if cures were delayed because of policies that make embryonic stem cell research difficult.					
11	Using umbilical cord blood stem cells is easy compare to embryo					
12	Umbilical cord blood is a rich source for stem cells.					
13	Umblical cord blood stem cells can be collected at the time of birth.					
14	If cost is affordable I can pay to store my baby cord blood.					
15	Your baby umbilical cord blood could be a potential match for siblings also.					
16	Embryonic stem cell research is illegal and unnecessary.					
17	Stem cell can be preserved for a lesser period.					
18						

19 20	Does your baby affected by collecting umbilical cord blood stem cells. Thalassemia,Leukaemia, Lymphoma can be treated by stem cell therapy. Stem cell transplantation should be widely practiced					

PART II -SCORE KEY FOR STRUCTURED KNOWLEDGE QUESTIONNAIRE

QUESTION NO	ANSWER	SCORE
1	a	**1**
2	b	1
3	a	1
4	c	1
5	a	1
6	a	1
7	a	1
8	a	1
9	a	1
10	a	1
11	d	1
12	b	1
13	b	1
14	b	1
15	a	1
16	c	1
17	c	1
18	b	1
19	d	1
20	c	1
21	c	1
22	b	1
23	c	1
24	b	1
25	d	1
26	a	1
27	a	1
28	c	1

29	c	1
30	d	1
31	c	1
32	b	1
33	d	1
34	d	1
35	a	1
36	a	1
37	a	1
38	a	1
39	a	1
40	d	1

SCORE: 40

PART - III

LIKERT ATTITUDE SCALE REGARDING CORD BLOOD STEM CELL THERAPY AMONG ANTENATAL MOTHERS

S.No	Question	Strongly agree (5)	Agree (4)	Neither agree nor disagree (3)	Disagree (2)	Strongly Disagree (1)
1	1					
2	2					
3	3					
4	4					
5	5					
6	6					
7	7					
8	8					
9	9					
10	10					
11	11					
12	12					
13	13					
14	14					
15	15					
16	16					
17	17					
18	18					
19	19					
20	20					

NOTE:

This is for positive statements. It will be reversible for negative statements.

APPENDIX XII

தகவல் சேகரிப்பு வினாக்கள்

பிரிவு – அ

தனி நபர் தகவல்

அறிவுரை:

தேர்வாளர் மாதிரி எண் அளிக்கும் பதிலை தொடர்பான இடத்தில் [✓] செய்வார்.

1. தாயின் வயது

(அ) 21 முதல் 25 வயதிற்குள் [ ]

(ஆ) 26 முதல் 30 வயதிற்குள் [ ]

(இ) 31 முதல் 35 வயதிற்குள் [ ]

(ஈ) 36 முதல் 40 வயதிற்குள் [ ]

2. மதம்

(அ) இந்து [ ]

(ஆ) முஸ்லீம் [ ]

(இ) கிறிஸ்துவர் [ ]

(ஈ) பிற மதத்தவர்கள் [ ]

3. தாய்மை நிலை

(அ) முதல் தடவையாக கருவுற்ற பெண் [ ]

(ஆ) இரண்டாவது முறையாக கருவுற்ற பெண் [ ]

(இ) பல முறை கருவுற்ற பெண் [ ]

4. கல்வி தகுதி

(அ) இடைநிலை கல்வி [ ]

(ஆ) உயர் நிலை கல்வி [ ]

(இ) பட்டப்படிப்பு [ ]

5. தொழில்

(அ) வீட்டு வேலை [ ]

(ஆ) அரசு அலுவலர் [ ]

(இ) தனியார் ஊழியர் [ ]

(ஈ) சுயதொழில் / வியாபாரம் [ ]

6. குடும்பத்தின் வகைகள்

(அ) தனி குடும்பம் [ ]

(ஆ) கூட்டுக் குடும்பம் [ ]

7. குருத்தணு சிகிச்சை பற்றிய அறிவு எதன்முலம் பெறப்பட்டது

(அ) தகவல் தொடர்பு சாதனங்கள் [ ]

(ஆ) சுகாதார அலுவலர்கள் [ ]

(இ) நண்பர்கள் [ ]

(ஈ) இவற்றில் ஏதுமில்லை [ ]

பிரிவு – ஆ

கர்பகால தாய்மார்களுக்கிடையே குருத்தணு சிகிச்சையை பற்றிய அறிவுதிறனை கண்டறியும் வினாக்கள்:

அறிவுரை:

கீழே 40 வினாக்கள் கொடுக்கப்பட்டுள்ளன ஒவ்வொரு வினாவிற்கும் நான்கு பதில்கள் தரப்பட்டுள்ளன. இதில் ஒன்று மட்டும் சரியான பதில். கர்பகால தாய்மார்கள் அளிக்கும் பதிலை தொடர்பான இடத்தில் தேர்வாளர் [✓] குறியீடுவார்.

1. உயிரின் அடிப்படை வடிவம் என்ன?

(அ) செல் [ ]

(ஆ) மைட்டோகாண்டீரியா [ ]

(இ) பிளாஸ்மா [ ]

(ஈ) டி.என்.ஏ [ ]

2. செல்களின் இரண்டு முக்கிய வகைகள் என்ன?

(அ) தசை செல்கள் மற்றும் செயலாளர் செல்கள் [ ]

(ஆ) குருத்தணு செல்கள் மற்றும் சாதாரண செல்கள் [ ]

(இ) எலும்பு செல்கள் மற்றும் குருத்தெலும்பு செல்கள் [ ]

(ஈ) நரம்பு செல்கள் மற்றும் எபிதீலியல் செல்கள் [ ]

3. குருத்தணு செல் என்றால் என்ன?

(அ) ஒரு செல் அதன் எண்ணிக்கையை பெருக்கி கொண்டும் மற்றும் சிறப்பு வகையான செல்களை உருவாக்ககின்றன. [ ]

(ஆ) ஒரு செல்களுக்கு குறிபிட்ட வகையான செல்களை உருவாக்கும் தன்மை கொண்டது. [ ]

(இ) ஒரு செல்களுக்கு புதிய செல்களை புதுபிக்கும் தன்மை கிடையாது. [ ]

(ஈ) ஒரு செல்களுக்கு உடலில் உள்ள அனைத்து செல்களை ஒரே நேரத்தில் புதுபிக்கும் தன்மை கொண்டது. [ ]

4. சாராரண செல் பிரிவின் வகைகள்?

(அ) டி.என்.ஏ பிரதிசெய்கை. [ ]

(ஆ) இணைவுப்பொருள் உருவாக்கம். [ ]

(இ) இலையுருப்பிபிவு மற்றும் ஒடுக்கற்பிரிவு. [ ]

(ஈ) எந்த பிரிவும் இல்லை. [ ]

5. இழையுருப்பிரிவின் முக்கிய வேறுபாடு?

(அ) ஒரு ஒற்றை செல் இரண்டு செல்களாக பிரிகின்றன. [ ]

(ஆ) ஒரு ஒற்றை செல் நான்கு செல்களாக பிரிகின்றன. [ ]

(இ) ஒரு ஒற்றை செல் ஆறு செல்களாக பிரிகின்றன. [ ]

(ஈ) ஒரு ஒற்றை செல் எட்டு செல்களாக பிரிகின்றன. [ ]

6. ஒடுக்கற்பிரிவு என்றால் என்ன?

(அ) ஒரு செல் இரண்டு செல்களாக பிரிவடைந்து மேலும் பாதி எண்ணிக்கையிலான குரோமோசோம்களை கொண்டுள்ளது. [ ]

(ஆ) ஒரு செல் நான்கு செல்களாக பிரிவடைந்து மேலும் பாதி எண்ணிக்கையிலான குரோமோசோம்களை கொண்டுள்ளது. [ ]

(இ) ஒரு செல் ஆறு செல்களாக பிரிவடைந்து மேலும் பாதி எண்ணிக்கையிலான குரோமோசோம்களை கொண்டுள்ளது. [ ]

(ஈ) ஒரு செல் எட்டு செல்களாக பிரிவடைந்து மேலும் பாதி எண்ணிக்கையிலான குரோமோசோம்களை கொண்டுள்ளது. [ ]

7. தொப்புள் கொடி இரத்த செல்கள் எதிலிருந்து உருவாகின்றன?

(அ) கரு குருத்தணுக்கள். [ ]

(ஆ) திசு குறிப்பிட்ட குருத்தணுக்கள். [ ]

(இ) இடைநுழைத்திசு குருத்தணுக்கள். [ ]

(ஈ) பலதிறன்களை தூண்டிய குருத்தணுக்கள். [ ]

8. தொப்புள்கொடி இரத்த ஓட்டத்தில் உட்செலுத்துதல்

(அ) நோயாளியின் இரத்த ஓட்டத்தில் உட்செலுத்துதல். [ ]

(ஆ) திரவங்களின் மூலம் நரம்புகளில் உட்செலுத்துதல். [ ]

(இ) இரத்த ஏற்றத்தின் மூலம் உட்செலுத்துதல். [ ]

(ஈ) எலும்பு மஜ்ஜையின் மூலம் உட்செலுத்துதல். [ ]

9. சேமிப்பு மற்றும் கருக்கள் பயன்படுத்தும் பிரிட்டிஷ் சட்டம் என்ன?

(அ) மனித கரு பாதுகாப்பு சட்டம். [ ]

(ஆ) மனித கருத்தரித்தல் சட்டம். [ ]

(இ) மனித கருத்தரித்தல் மற்றும் கருவியல் ஆய்வு சட்டம் [ ]

(ஈ) கரு பாதுகாப்பு சட்டம் [ ]

10. தொப்புள்கொடி இரத்த மாற்று முறையை முதன்முதலில் எப்பொழுது நிகழ்த்தப்பட்டது?

(அ) 1990. [ ]

(ஆ) 1991. [ ]

(இ) 1992. [ ]

(ஈ) 1993. [ ]

11. தொப்புள் கொடி குருத்தணுக்களின் மூலம் எத்தனை நோய்கள் குணப்படுத்தபடுகின்றன?

(அ) சுமார் 50 அச்சுறுத்தும் நோய்கள் [ ]

(ஆ) சுமார் 60 அச்சுறுத்தும் நோய்கள் [ ]

(இ) சுமார் 70 அச்சுறுத்தும் நோய்கள் [ ]

(ஈ) சுமார் 80 அச்சுறுத்தும் நோய்கள் [ ]

12. எந்த வகையான செல்களின் மூலம் கருகுருத்தணுக்கள் வேறுபடுகின்றன?

(அ) மூளை குருத்தணுக்கள் மற்றும் சிறப்பு மூளை செல்கள். [ ]

(ஆ) உடலின் எல்லா வகையான சிறப்பு செல்களும். [ ]

(இ) இன்சுலினை உற்பத்தி செய்யும் செல்கள். [ ]

(ஈ) செயற்கை முறையினால் ஆன தோல் செல்கள். [ ]

13. குருத்தணுக்கள் எந்த வகையான எதிர்ப்பு நோய்களை குணப்படுத்துகின்றன?

(அ) யானைக்கால் நோய் மற்றும் கக்குவான் இருமல். [ ]

(ஆ) வகை 1 நீரழிவு மற்றும் முடக்கு வாதம். [ ]

(இ) புணர்புழையழறசி நோய்கள். [ ]

(ஈ) சின்னம்மை மற்றும் அம்மை. [ ]

14. எந்த வகையான குருத்தணுக்களை மனித உடலில் கண்டுபிடிப்பது கடினமானது?

(அ) கரு குருத்தணுக்கள். [ ]

(ஆ) திசு குறிப்பிட்ட குருத்தணுக்கள். [ ]

(இ) இடைநுழைத்திசு கருத்தணுக்கள். [ ]

(ஈ) பல திறன்களை தூண்டிய குருத்தணுக்கள். [ ]

15. இடைநுழை குருத்தணுக்கள் எங்கே காணப்படுகிறது?

(அ) எலும்பு மஜ்ஜை. [ ]

(ஆ) கல்லீரல். [ ]

(இ) மூளை. [ ]

(ஈ) திசு. [ ]

16. பலத்திறன்களை தூண்டப்பட்ட குருத்தணுக்கள் அதே வளர்ச்சி சாத்தியம் இல்லை?

(அ) குருதியாக்க குருத்தணுக்கள். [ ]

(ஆ) நரம்பகள் சார்ந்த குருத்தணுக்கள். [ ]

(இ) கரு குருத்தணுக்கள். [ ]

(ஈ) பற்கூழ் குருத்தணுக்கள். [ ]

17. மனிதனின் பலதிறன் செல்கள் பற்றி மிகவும் துல்லியமான அறிக்கை என்றால் என்ன?

(அ) அனைத்து வகையான மனித செல்கள். [ ]

(ஆ) கரு குருத்தணுக்கள் மட்டும் பொருந்தும். [ ]

(இ) கரு திசுக்களை தவிர அனைத்து வனையான மனித செல்கள். [ ]

(ஈ) வேறுபடுத்தகூடிய மற்றும் தானாக புதுப்பிக்க கூடியது. [ ]

18. குருத்தணுக்களின் பிளவு மற்றும் புதுப்பிக்கும் திறன் கொண்டவை எது?

(அ) மிக குறுகிய காலங்களில். [ ]

(ஆ) நீண்ட காலங்களில். [ ]

(இ) ஒரு நிமிடத்தில். [ ]

(ஈ) எந்த வித காலங்களிலும் இல்லை. [ ]

19. ஆரோக்கியமான குழந்தைகளின் உடலில் உருவாகும் இரத்த குருத்தணுவின் அளவு

(அ) 1,000-க்கு மேற்பட்ட குருத்தணுக்கள். [ ]

(ஆ) 10,000-க்கு மேற்பட்ட குருத்தணுக்கள். [ ]

(இ) 1,00,000-க்கு மேற்பட்ட குருத்தணுக்கள். [ ]

(ஈ) 10,00,000-க்கு மேற்பட்ட குருத்தணுக்கள். [ ]

20. குழந்தைகளின் எந்த வகையான நோய்களை தொப்புள்கொடி இரத்தத்தின் மூலம் வெற்றிகரமாக குணப்படுத்தபடுகின்றன?

(அ) டைபாய்டு மற்றும் காசநோய். [ ]

(ஆ) இளம்பிள்ளை வாதம் மற்றும் தொண்டை அழற்சி நோய். [ ]

(இ) இரத்த புற்று நோய் மற்றும் இரத்தசோகை. [ ]

(ஈ) வயிற்றுபோக்கு மற்றும் வயிற்றுகடுப்பு. [ ]

21. குருதியாக்க குருத்தணுக்கள் எதிலிருந்து பெறப்படுகிறது?

(அ) இரத்த வெள்ளையணுக்கள். [ ]

(ஆ) இரத்த சிவப்பணுக்கள். [ ]

(இ) தொப்புள்கொடி இரத்தம். [ ]

(ஈ) நஞ்சுக்கொடி. [ ]

22. எந்த வகையான நோயாளிகளுக்கு கொடையாளர்களிடமிருந்து குருத்தணுக்கள் மாற்று பெற வேண்டும்?

(அ) வயிற்றுபோக்கு. [ ]

(ஆ) இரத்த புற்றுநோய். [ ]

(இ) இளம்பிள்ளை வாதம். [ ]

(ஈ) கடுங்காய்ச்சல். [ ]

23. தொப்புள்கொடி இரத்த குருத்தணுக்கள் பொருந்த எந்த வகையை சார்ந்தவராக இருக்க வேண்டும்?

(அ) நண்பர்கள். [ ]

(ஆ) அருகில் உள்ளவர்கள். [ ]

(இ) உடன்பிறப்புகள். [ ]

(ஈ) மற்றவர்கள். [ ]

24. தமிழ்நாட்டில் தொப்புள்கொடியின் இரத்தவங்கி சேகரிப்பு மையம் எங்கு உள்ளது?

(அ) கோயம்புத்தூர். [ ]

(ஆ) சென்னை. [ ]

(இ) மதுரை. [ ]

(ஈ) சேலம். [ ]

25. நிலையான மற்றும் செயலாக்க கட்டணம் அளவு எவ்வளவு?

(அ) ரூ 32,000. [ ]

(ஆ) ரூ 27,000. [ ]

(இ) ரூ 50,000. [ ]

(ஈ) ரூ 35,000. [ ]

26. தொப்புள்கொடி குருத்தணுக்கள் எவ்வளவு காலம் சாத்தியமானது?

(அ) 23 ஆண்டுகளுக்கு மேலாக உறைந்த நிலையில். [ ]

(ஆ) 20 ஆண்டுகளுக்கு மேலாக உறைந்த நிலையில். [ ]

(இ) 15 ஆண்டுகளுக்கு மேலாக உறைந்த நிலையில். [ ]

(ஈ) 30 ஆண்டுகளுக்கு மேலாக உறைந்த நிலையில். [ ]

27. நஞ்சுகொடி குருத்தணுக்கள் சேகரிப்பு தொடர்பான சேவை மையங்களில் யார் தெரிவிக்க வேண்டும்?

(அ) மருத்துவமனை. [ ]

(ஆ) நண்பர்கள் மற்றும் உறவினர்கள். [ ]

(இ) தானம் கொடுப்பவர். [ ]

(ஈ) பொது மக்கள். [ ]

28. மருத்துவமனையில் தொப்புள்கொடி இரத்த சேகரிப்பு தொடர்பாக நன்கொடையாளர்கள் எந்த மாதத்தில் தெரிவிக்க வேண்டும்?

(அ) 3 மாதத்தில். [ ]

(ஆ) 6 மாதத்தில். [ ]

(இ) பிரசவ அறைக்கு செல்வதற்கு முன்பு. [ ]

(ஈ) பிரசவத்தின் போது. [ ]

29. தொப்புள்கொடி இரத்த சேகரிப்பில் ஒப்புதல் கொடுக்க யார் முடியும்?

(அ) கணவர். [ ]

(ஆ) பெற்றோர்கள். [ ]

(இ) கொடையாளர்கள். [ ]

(ஈ) உறவினர்கள். [ ]

30. தொப்புள்கொடி இரத்த சேகரிப்பு எந்த வகையான பிரசவத்தில் நிகழ்த்த முடியும்?

(அ) அறுவை சிகிச்சை பிரசவம். [ ]

(ஆ) சுகபிரசவம். [ ]

(இ) ஆயுதத்துடன் கூடிய சுகபிரசவம். [ ]

(ஈ) அறுவை சிகிச்சை பிரசவம் / சுகபிரசவம். [ ]

31. எப்பொழுது தொப்புள்கொடி குருத்தணுக்கள் எடுக்கபடுகிறது?

(அ) பிரசவத்திற்கு 30 நிமிடத்திற்கு பிறகு. [ ]

(ஆ) பிரசவம் முடிந்த 30 நிமிடத்திற்கு பிறகு. [ ]

(இ) பிரசவம் முடிந்த 10 நிமிடத்திற்குள். [ ]

(ஈ) நஞ்சுகொடி வெளிவந்த 10 நிமிடத்திற்குள். [ ]

32. தொப்புள்கொடி இரத்தம் எந்த இடத்திலிருந்து எடுக்கபடுகிறது?

(அ) நஞ்சுகொடி. [ ]

(ஆ) நஞசுகொடி தண்டு. [ ]

(இ) தொப்புள் தமணி. [ ]

(ஈ) கருப்பை வாய் மூலம் வரும் இரத்தம். [ ]

33. சேகரிக்கபட்ட பெட்டியை பாதுகாப்பாக எடுத்து செல்வதில் மருத்துவரின் பங்கு?

(அ) தாயை பற்றி அடிப்படை விவரங்கள். [ ]

(ஆ) குழந்தையை பற்றிய அடிப்படை விவரங்கள். [ ]

(இ) மருத்துவமனை பற்றிய அடிப்படை விவரங்கள். [ ]

(ஈ) தாய் மற்றும் குழந்தை பற்றிய முழு விவரங்கள். [ ]

34. குழந்தையின் தொப்புள் கொடியிலிருந்து எவ்வளவு இரத்தம் எடுக்கப்படுகிறது?

(அ) 60 மில்லி. [ ]

(ஆ) 70 மில்லி. [ ]

(இ) 80 மில்லி. [ ]

(ஈ) 90 மில்லி. [ ]

35. சேகரிக்கபட்ட குருத்தணுக்களை வேறொரு இடத்திற்கு எடத்து செல்லும் போது எந்த வெப்பநிலையில் வைக்கபடுகிறது?

(அ) 15°C முதல் 25°C வரை. [ ]

(ஆ) 20°C முதல் 30°C வரை. [ ]

(இ) 30°C முதல் 40°C வரை. [ ]

(ஈ) 40°C முதல் 50°C வரை. [ ]

36. சேகரிக்கப்பட்ட மாதிரி மருத்துவமனையில் இருந்து எவ்வளவு நேரத்திற்குள் ஆய்வகம் எடுத்து செல்லப்பட வேண்டும்?

(அ) 48 மணி நேரத்திற்குள். [ ]

(ஆ) 24 மணி நேரத்திற்குள். [ ]

(இ) 50 மணி நேரத்திற்குள். [ ]

(ஈ) 20 மணி நேரத்திற்குள். [ ]

37. குருத்தணுக்களை பாதுகாக்கும் நுட்பம் என்ன?

(அ) கிரையோ மிககுறைந்த வெப்பநிலையில். [ ]

(ஆ) மிககுறைந்த வெப்பநிலை. [ ]

(இ) குளிர்சாதன பெட்டி. [ ]

(ஈ) புதிய இடத்தில். [ ]

38. தொப்பள்கொடி குருத்தணுக்கள் பின்வரும் எந்த வெப்பநிலையில் பாதுகாக்கப்படுகிறது?

(அ) -196°C. [ ]

(ஆ) -186°C. [ ]

(இ) -176°C. [ ]

(ஈ) -166°C. [ ]

39. குருத்தணுக்களை பாதுகாப்பதற்கான காலாவதி தேதி என்ன?

(அ) எந்த ஒரு தேதியும் இல்லை. [ ]

(ஆ) 0-5 ஆண்டுகள். [ ]

(இ) 5-10 ஆண்டுகள். [ ]

(ஈ) 10-20 ஆண்டுகள். [ ]

40. சேகரிக்கபட்ட தொப்புள்கொடியின் இரத்த சட்ட அதிகாரி யார்?

(அ) பெற்றோர்கள். [ ]

(ஆ) உறவினர்கள். [ ]

(இ) மருத்துவமனை. [ ]

(ஈ) குழந்தை பருவம் மாறும் வரை. [ ]

பிரிவு - இ

கர்பகால தாய்மார்களுக்கிடையே குருத்தணு சிகிச்சை பற்றிய மனப்பான்மையை அறிதல்.

அறிவுரை:

கீழே உள்ள அறிக்கை குருத்தணு சிகிச்சை பற்றிய மனப்பான்மையை விளக்குவது ஆகும் தேர்வாளர் கர்பகால தாய்மார்கள் அளிக்கும் பதிலை சரியான கட்டத்தில் [✓] குறியிடுவார்.

வ. எண்	அறிக்கை	உ.ஒ	ஒ.கொ	நி.இ	ஒ.கொ.வி	உ.ஒ. கொ.வி
1.	குருத்தணு சிகிச்சை எந்த வித ஆபத்தும் இல்லாதது ஏனென்றால் நமது உடலில் இருந்து பெறப்பட்டது.					
2.	தொப்புள் கொடி ரத்தம் சேகரிக்கும் போது, குழந்தை எந்த வழியிலும் பாதிக்கப்படவில்லை.					
3.	குருத்தணுக்கள் பலவித நோய்களை குணபடுத்த உதவுகிறது.					
4.	குருத்தணுக்களை நீண்ட காலம் வரை சேமிக்க முடியும்.					
5.	குருத்தணுக்கள் நஞ்சுக்கொடியிலிருந்து பெறப்பட்டவை.					
6.	வயது வந்தோர்களின் குருத்தணுக்கள் மட்டும் எலும்பு மஜ்ஜையில் காணப்படுகிறது.					
7.	மருத்துவ நடைமுறை ஆலோசனை படி தாய்மார்கள் குருத்தணுக்களை வேறேனும் நோக்கத்திற்காக சேமிக்கின்றன.					
8.	கரு குருத்தணுக்கள் பிளாஸ்டோசிஸ்டின் உள்செல்திரளிலிருந்து பெறப்படுகிறது.					
9.	குருத்தணுக்களின் மூலம் நீரிழிவு, இதய நோய் மற்றும் நரம்பு தளர்ச்சி நோய்களை குணப்படுத்த முடியும்.					
10.	குருத்தணு ஆராய்ச்சி முறை மூலம் குணமாதலில் கடினம் என்ற கொள்கை தாமதமாக வந்தால் அது கொடூரமானது.					
11.	கருவை ஒப்பிட்டு பார்க்கும் பொழுது தொப்புள் கொடி குருத்தணுக்களை பயன்படுத்துவது எளிது.					
12.	தொப்புள்கொழ குருத்தணுக்கள் ஒரு அதிகபடியான ஆதாரமாக உள்ளது.					

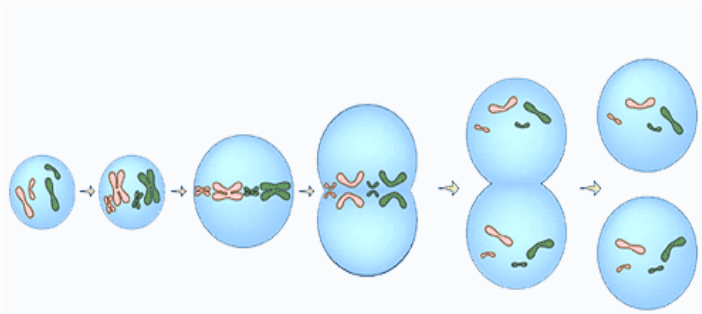
13.	தொப்புள்கொடி குருத்தணுக்கள் குழந்தை பிறந்தவுடன் எடுக்கபடுகிறது.					
14.	செலவு மலிவு என்றால் நான் என் குழந்தையின் தொப்புள்கொடி இரத்தத்தை சேமிக்க முடியும்.					
15.	உங்களுடைய குழந்தையின் தொப்புள் கொடி இரத்தம் அவர்களின் உடன் பிறந்தவர்களுக்கும் பொருந்துமா?					
16.	கரு குருத்தணுக்களின் ஆராய்ச்சி சட்டவிரோதம் மற்றும் தேவையற்றது.					
17.	குருத்தணுக்களை மிக குறைந்த வெப்பநிலையில் பாதுகாக்க முடியும்.					
18.	தொப்புள் கொடி குருத்தணுக்களை எடுக்கும் பொழுது குழந்தைகள் பாதிக்கப்படுகின்றன.					
19.	குருத்தணு சிகிச்சையின் மூலம் தலசீமியா, இரத்தபுற்றுநோய் மற்றும் நிணநீர் புற்றுநோய் குணபடுத்த முடியும்.					
20.	குருத்தணு மாற்று சிகிச்சை முறையை பெரிய அளவில் நடைமுறைபடுத்தபடுகின்றன.					
	உ.ஒ: உறுதியாக ஒப்புகொள்கிறேன். ஒ.கொ: ஒப்புக் கொள்கிறேன். நி.இ: நிலையில்லாமை. ஒ.கொ.வி: ஒப்பு கொள்ளவில்லை. உ.ஒ.கொ.வி: உறுதியாக ஒப்புக்கொள்ளவில்லை.					

குருத்தனு சிகிச்சை பற்றிய பாடத்திட்டம்

முன்னுரை

சாதாரண செல் அமைப்பை பற்றி வரையறை

சாதாரண செல் பிரிதல் :



குருத்தணு வரையறை :

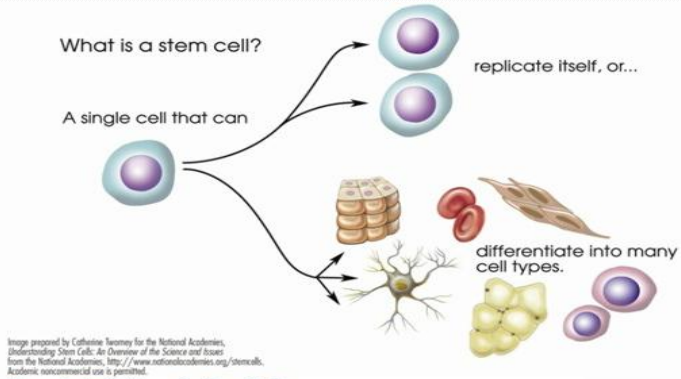


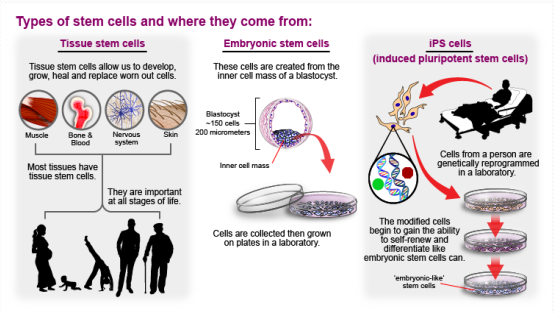
Figure 1: Definition of a Stem Cell

குருத்தணு சிகிச்சை முறை பற்றிய வரலாறு :

- 1974ல் முதன் முத ல் மனித தொப்புள்கொடி இரத்த குருத்தணுக்கள் கண்டுபிடிக்கபட்டது.
- 1983ல் டாக்டர் ஹால் பிராக்ஸ்மியர் மற்றும் கொலேஜியஸ் முதன் முத ல் தொப்புள்கொடி ரத்த வங்கி ஆதார கொள்கையை உருவாக்கினர்.
- 1990ல் இரத்த புற்றுநோய் (வெள்ளை அனுக்கள்) சிகிச்சையை உலகின் முதன் முத ல் தொப்புள்கொடி இரத்த மாற்று முறையை மினசோட்டா பல்கலைக்கழகத்தில் டாக்டர்.ஜான்வாக்னர் செயல்படுத்தினார்.
- 2008ல் உலக அளவில் 12,000 பேர்களுக்கு குருத்தணுக்கள் மாற்றப்பட்டுள்ளது. இதனால் இரத்த சார்ந்த நோய்கள் குணப்படுத்தப்பட்டு வருகின்றன.

குருத்தணுக்களின் வகைகள் :

- கரு குருத்தணுக்கள்
- திசு குறிப்பிட்ட குருத்தணுக்கள்
- இடைநுழைத்திசு குருத்தணுக்கள்
- பலதிறன்களை தூண்டிய குருத்தணுக்கள்.



குருத்தணுவின் பண்புகள் :

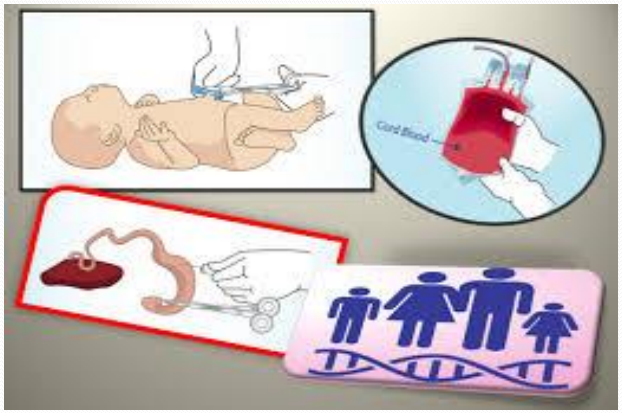
குருத்தணுக்கள் உட ல் மற்ற வகையான செல்கள ிருந்து வேறுபடுகின்றன. அனைத்து குருத்தணுக்களும் பொதுவான மூன்று பண்புகளை கொண்டு உள்ளது.

நீண்ட காலத்திற்கு தங்களை பிளவு மற்றும் புதுப்பிக்கும் திறன் கொண்டவை.

எந்தவிதமான சிறப்பு பண்புகளையும் கொண்டது அல்ல.

அதிகப்படியான சிறப்பு செல்களின் வகைகளை கொடுக்க முடியும்.

தொப்புள் கொடி இரத்தத்தின் மூலம் சிகிச்சை நோய்களை கணக்கிடுதல்



குருத்தணுகளை சேகரிக்கும் நடைமுறைகளை விளக்குதல்

மருத்துவமனையில் 1 6 மாத இடைவெளியில் நஞ்சுக்கொடி குருத்தணுக்கள் சேகரிப்பு தொடர்பாக சேவை மைமயங்களில் தெரிவிக்க வேண்டும்.

தொப்புள்கொடி இரத்தவங்கி சேகரிப்பு மையங்கள் இந்தியாவில் பல்வேறு இடங்களான சென்னை, மும்பை, புதுடெல் , புனே, கொல்கத்தா, ஹைதராபாத், பெங்களூர், அகமதாபாத் மற்றும் பல நகரங்களிலும் உள்ளன.

குருத்தணுகளை சேகரிக்கும் நடைமுறைகளை விளக்குதல்

	வருடாந்திர சேமிப்பு	21 வருடம்	ஆயுட்காலம்
செய்முறைக் கட்டணம்	10,000	10,000	10,000
பதிவுக் கட்டணம்	3,500/ மாதம்	25,000 (ஒரே தவணை)	40,000 (ஒரே தவணை)

•குழந்தை பிறந்தவுடன் தொப்புள்கொடி வெட்டப்படுகிறது,

•அதிலிருந்து தான் குருத்தனு சேகரிப்பதற்கு இரத்தம் பெறப்படுகிறது.

• அதனால் தாய் மற்றும் சேய்க்கு எந்த விதமான பாதிப்பும்,வலியும் இல்லை.

ஒரு சிறப்பு இரத்த பையில் தொப்புள்கொடி இரத்தம் சேகரிக்கப்பட்டு குறியிடப்படுகிறது.

கிரையோ பாதுகாப்பு செயல்முறையில் குருத்தணுக்கள் தொப்புள்கொடி இரத்தத்தில் இருந்து எடுக்கப்பட்டு பூஜ்ஜியம் வெப்பநிலையில் (196° c) பத்திரமாக பாதுகாக்கப்படுகிறது.


Thank You

ABSTARCT

Cord blood stem cell research has been extensively explored worldwide to enhance human health in medical setting. Stem cells have tremendous promise to helping us to understand and treat a range of various diseases, injuries and other health-related conditions. Their potential is evident in the use of cord blood stem cells to treat diseases of the blood, A cord blood stem cell therapy has saved the lives of thousands of children with leukemia; and can be seen in the use of stem cells for tissue grafts to treat diseases or injury to the bone, skin and surface of the eye. Important clinical trials involving stem cells are underway for many other conditions and researchers continue to explore new avenues using stem cells in medicine.

Genetic disorder rate in India 64.4 % (per 1000 live births),Rao and Ghose (2005) report that 1 out of 20 children admitted to hospital has a genetic disorder that ultimately account for about 1 out of 10 childhood deaths. In India ultimately urban area are affected with congenital malformation and genetic disorder are the third most common cause of mortality in newborns. There are an estimated 60-80 million people in the world who carry the beta thalassemia trait. *P*eople who carry thalassemia in India alone number approximately 30 million.

The main objective of the study is to assess effectiveness of structured teaching programme on knowledge and attitude regarding stem cell therapy among antenatal mothers in selected private hospitals at Namakkal district. One group pretest and posttest design was used for this study. The independent variable in this study is structure teaching program on cord blood stem cell therapy. The dependent variables in this study are knowledge and attitude. The study was conducted at jayaa and suguna hospital Tiruchengode which is a 100 bedded hospitals.

Sample includes antenatal mothers with stem cell therapy at jayaa and suguna hospitals, who fulfils the inclusion criteria were selected by non probability convenient sampling technique. Structured teaching on knowledge and attitude regarding stem cell therapy among antenatal mothers.

The comparison of pretest, the mean score of knowledge was 11.50 with S.D 2.70 whereas in the post test the mean score of knowledge was 33.06 with S.D 3.93. The calculated paired‘t’ value of t = 57.742 was found to statistically significant at $p<0.001$ level. This clearly shows that the structured teaching programme imparted to antenatal mothers had significant improvement in the post test level of knowledge regarding cord blood stem cell therapy.

There was a significant improvement of knowledge and attitude regarding stem cell therapy among antenatal mothers at Jayaa and Suguna hospitals after structured teaching as an intervention. Thus structured teaching on stem cell therapy was an effective intervention in the enhancement of knowledge and attitude among antenatal mothers.

The present study conducted by the investigator, mainly focused on the structured teaching programme to improve the knowledge and attitude on stem cell therapy and was found effective and also the researcher insisted the antenatal mothers should improve the knowledge of stem cell therapy.