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Marketing and Survey Analysis of Stem Cell Banking in Western Maharashtra

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Abstract: ***Purpose to check the knowledge of general population and doctors from western Maharashtra about the basics, purpose, utility and capability of stem cells banking and future scopes in medical field. Data was collected from three hospitals from Sangali district. For given study one thousand and two hundred individual from different background and different age group participated between 28th October to 4th January. Among these people 64% of general population heard about stem cell and cord blood banking, only 20% people have detailed information of stem cell banking and 70% medical staff have positive approach toward stem cell banking. Majority of people don't know importance of cells on deadly disease. Lot of people unaware about technical terms and preservation techniques. Doctors have different opinion on use of stem cells on genetic disorder. 30% doctors though still it need more research and development for use of medical purpose. Hospitals, Institute and young generation need to take action on awareness of stem cell banking. obstetricians and the pediatricians should take a central role in providing the correct information to would be parents to help them in taking a correct decision.***
Keywords: Stem cell. Cord Blood Banking. preservation. Doctor. General population

I. INTRODUCTION

Stem cells, are primary cells that have the capability to distinguish into nearly all varieties of cells observed withinside the human body. Upon important stimulus and introduction of an appropriate environment, every stem cell has the capacity to change into an organ. This is the electricity those tiny dwelling cells possess. Stem cells have spread out new possibilities for therapeutics, on the way to provide a complete regenerative therapy in contrast to preventive or healing remedy. Untreatable illnesses without a regarded remedy to be had in today's medicinal drug for muscular dystrophies, diabetes mellitus, parkinsonism, stroke, autism, hair loss, etc. have proven promising outcomes after transplantation of stem cells[1]. The umbilical cord includes Wharton's jelly, a gelatinous substance made in large part from mucopolysaccharides that protects the blood vessels inside. It includes one vein, which consists of oxygenated, nutrient-wealthy blood to the foetus, and arteries that deliver deoxygenated, nutrient-depleted blood away. Recent research has proven convincing proof that UCB (Umbilical Cord Blood) now no longer simplest includes haematopoietic progenitors, however additionally numerous varieties of stem cells and progenitor cells that offer an excessive proliferative capability a various differential capacity. Cells derived from UBC have a couple of benefits over grownup stem cells remoted from different source like bone marrow, considering UCB is amassed through a painless system and isn't always uncovered to the immunologic challenge. Once the umbilical cord is clamped, it's far wiped with antiseptic and a needle is inserted into the vein withinside the umbilical cord to withdraw some oz of blood. One is to hold a blood bag decrease than the mom and permit gravity draw blood down the tube into the bag. This technique is utilized in maximum nations of the world, as it has the fewest steps, and consequently the fewest possibilities for errors or contamination[2]. Regenerative medicinal drug, tissue engineering and gene remedy display splendid promise to deal with and therapy many illnesses that appear uncurable today. This direction of technique to customized medicinal drug basically makes use of stem cells to gain this goal. However, those stem cells are on the chance of being negatively laid low with variables which include the donor's age and fitness popularity on the time of series, consequently compromising its efficacy. Stem cells banking gives the possibility to maintain and save the stem cells at their maximum amazing nation the usage of cryogenic garage techniques. These cryogenically preserved stem cells may be saved for an indefinite quantity of time and may be used at any time needed[1]. India is 2nd biggest populous country in world. populace price in India is 1.0 % annual change (2018). And birth rate in India is 2.24% per women (2017). Birth of a brand new born is universally accompanied with the aid of using the separation of umbilical cord. The afterbirths cord and placenta are discarded as organic waste and channelized for suitable disposal. After the efficaciously confirmed healing application and capacity of stem cells acquired from bone marrow and peripheral blood, the Umbilical Cord Blood (UCB) has emerged as a probably promising and wealthy supply of stem cells which may be used for hematopoietic reconstitution. The and system of series and garage of those cord blood stem cells are referred to as umbilical cord blood banking. It is widely recognized that umbilical cord blood (UCB) is an opportunity and wealthy supply of stem cells for haematopoietic transplantation, that could therapy kids and adults of malignant, non-malignant illnesses, which include leukaemia's, lymphomas, metabolic disorders, immunodeficiency states, haemoglobinopathies and bone

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marrow failure syndromes1-2. But there are a few eligibility standards for transplant of cord blood. There have to be sufficient cord blood amassed, and an excessive sufficient stem cells depend to facilitate a transplant. The mom's scientific records have to meet the eligibility guidelines. The cord blood unit and the mom's blood pattern have to display no symptoms and symptoms of contamination or different scientific concerns. Donor recipient matching techniques for cord blood transplantation hooked up withinside the days of those early transplants. Low decision (antigen level) matching changed into used at HLA Class I am and B loci with excessive decision matching for HLA Class II DRB1. Stem cells are the unspecialised cells that could differentiate into some other varieties of cells. The use of stem cells as a supply of hematopoietic stem cells has been increasing. Research in stem cells for scientific and academic cause is a vital subject matter in today's existence however continues to be in growing techniques. The success tales of use of umbilical cord blood stem cell transplantation have accelerated the call for of the households to investigate approximately the same[3].

II. MATERIALS AND METHODS

This takes a look at become performed in Hospitals and genecology located in Sangali district in western Maharashtra. All hospitals had been decided on aren't related with any Private twine blood and public twine blood bank. A written knowledgeable permission become received from all 1200 participants, and that they had been loose to speak about their doubts and ask for any clarifications that they'd earlier than a part of take a look at. The survey become achieved beneath Neath the institutional internship cum undertaking with the steering and assist of Stem Plus Cryopreservation Sangali. Study become achieved to evaluation the expertise and consciousness of stem cell banking in rural areas. take a look at become achieved in one-of-a-kind form of humans, one that preserved their babies stem cells as compared to who now no longer preserved their babies stem cells. To evaluation the mind-set and consciousness of each form of humans.

A. Study Context

The take a look at topics consisted of popular humans and pregnant women's traveling to Gynaecology in hospitals of Sangali, Maharashtra. The humans had been contacted in my opinion and telephonic for filling up the questionnaire once you have a written and knowledgeable permission from them. The questionnaires had been accumulated through the take a look at investigator. The common time taken through humans for giving the solutions of requested questions become 15 to 17 minutes.

B. Study Population

The take a look at topics consisted of all of the obstetricians operating withinside the hospitals and Gynaecology in hospitals and pregnant moms and general population in Sangali western Maharashtra in India. The obstetricians had been contacted one at a time for filling up the take a look at questionnaire after acquiring a written and knowledgeable consent from them. The questionnaires with solutions had been accumulated instant through the take a look at investigator. The common time taken for filling the questionnaire become 15 minutes. And for pregnant mom had been contacted in my opinion for counselling and filling up take a look at questionnaire.

C. Study Questionnaires

Box No.1: List of questions

1. Ever you heard about stem cells?
2. From which source you get the information of stem cell?
3. You familiar with term stem cell banking?
4. Doctors or obstetricians, provide you info about stem cell banking?
5. Do you know we can use stem cells for a medical purpose?
6 Do you know stem cells are collected from Cord blood?
7. Do you know cord blood have rich amount of stem cells?
8. Do you know now days stem cells are used as most advance method used in medical field to cure blood and cancer related disease?
9. Are you interested in to know more about stem cells?
10. you will preserve your child's stem cell for his/her future?
11. Do you have any idea about Public and Private Cord blood bank?

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The take a look at questionnaire become fashioned to evaluate the attention, mind-set, expectancies and additionally protected questions associated with warning signs of banking, software of stem cells for non-public and own circle of relatives use of popular humans. The questionnaire become designed after regarding numerous different researches executed on stem cells and survey on it. It became demonstrated through 5 concern experts, one every from the scientific director, branch of mobile biology, and Community Medicine and from the Department of Obstetrics and Gynaecology. Questionnaires for gynaecologist and pregnant mom become absolutely one-of-a-kind to choose one-of-a-kind elements in keeping with their expertise and background. A small-scale take a look at become first executed on ten topics, and questions had been checked for any misunderstood options, unanswered questions, and doubtful options. No predominant corrections had been observed, and the very last questionnaire with a few adjustments and modifications become used for carrying out the take a look at[1].

Baseline demographics of the respondents like age, sex. After that, the 22-object questionnaire become crammed through the obstetricians. It consisted of 5 statements assessing the attention of humans approximately UCB banking with responses recorded as accurate or incorrect, then subsequent a few statements assessing the mind-set of humans on UCB banking with responses as Yes, no, or do now no longer know, and a few statements on expectancies of humans from UCB banking with responses coded as Yes, no, or do now no longer know. Finally, for secondary evaluation, the topics had been requested to self-charge their expertise approximately UCB banking on a Likert scale of 1-5 (1 being fantastic and 5 being very poor). The topics had been additionally requested to say the supply in their expertise for UCB banking, and responses had been coded and analysed. The questions to know about consciousness, mind-set, and expectancies and self-rated expertise and reasserts of records had been analysed separately, and the responses had been suggested as counts and percentages[4].

III. RESULT

The present study based on people looked into the awareness, attitude, and expectancies from UCB banking in Western India. A general of 1200 people participated withinside the observe, of which 1200 absolutely crammed and back questionnaires had been analysed. The median age become 32 years with 25 years being the youngest and sixty-five years being the oldest participant. More than one-third in the class of less than forty years of age, representing the fairly more youthful individuals in our observe cohort. 80% had graduate or postgraduate degrees.

Awareness of UCB Banking. In this study, 64% people heard about stem cells and 34% unaware about stem cell idea. 39% people successfully knew the which means of UCB banking. Near about 48% population acquainted with review of stem cell banking. Oppositely 89% people don’t have understanding about supply and preservation technique of stem cells. Only one-third declared that they understood the idea of public and private UCB banking successfully. A majority of respondents (69%) had been doubtful about its potential uses. People get the facts about stem cell banking 19% from brochure, 32 %people have basic facts on stem cells banking, 34% human beings get facts from Hospital and 15% people get facts from different sources like relatives, friends, colleagues. Very few people have exact facts on stem cell, stem cell banking and their destiny uses. Only 20% people have right understanding on idea of Stem cells.

More than half (round 80 % or more) had been now no longer aware about the technical elements of like sufficiency of the amount for transplantation and need for HLA matching. Eighty percentage had no concept about the fee, length of storage and destiny of the equal in the event that they do now no longer pay the money. An extensive majority (90 %) did now no longer understand that the saved twine blood may be used for a few different characters from the equal and extraordinary family. Regarding the risk of use of cord blood for the equal character in destiny. further assessment questions had been requested approximately the warning signs for cord blood transplantation 80 % did not understand the warning signs of its use. About 75% of respondents self-rated their understanding of UCB banking as both bad or very bad. When enquired approximately the sources of information and understanding about UCB banking.

Some questions had been asked to gynaecologist, doctors, and hospital workers also. Near 70% doctors having positive opinion on stem cells banking, 30% idea nevertheless it isn't plenty evolved for clinical use. 91% doctors permit to collect cord blood and advertise to a few private cord banking companies. In response to the criteria for recommending UCB, the responses were diverse. Twenty percent of them felt that it has to be offered to all of the families. 25% spoke back that best those who appear to afford the fee have to be supplied. 24% percent and 11 % idea that the couples who've a valuable being pregnant or the ones, who ask for it, respectively have to be supplied UCB. Hospital people who have been hired for longer did now no longer acquire unique training on UCB.

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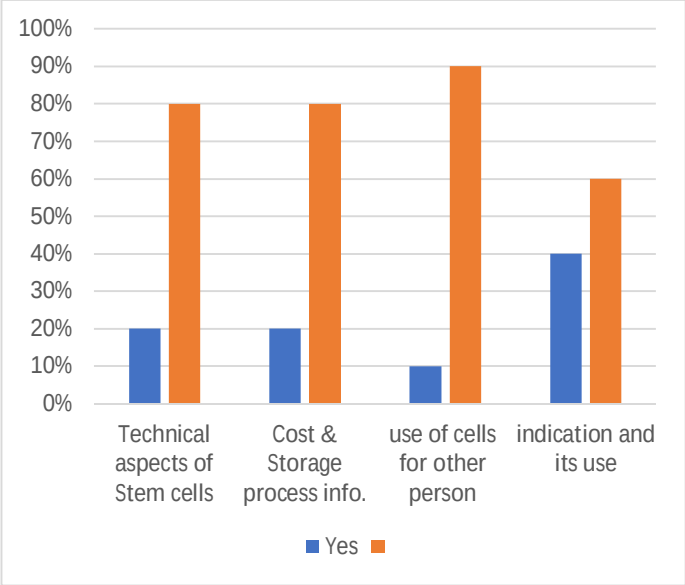


Fig. 2 Indication of detailed term knowledge of stem cell banking in population

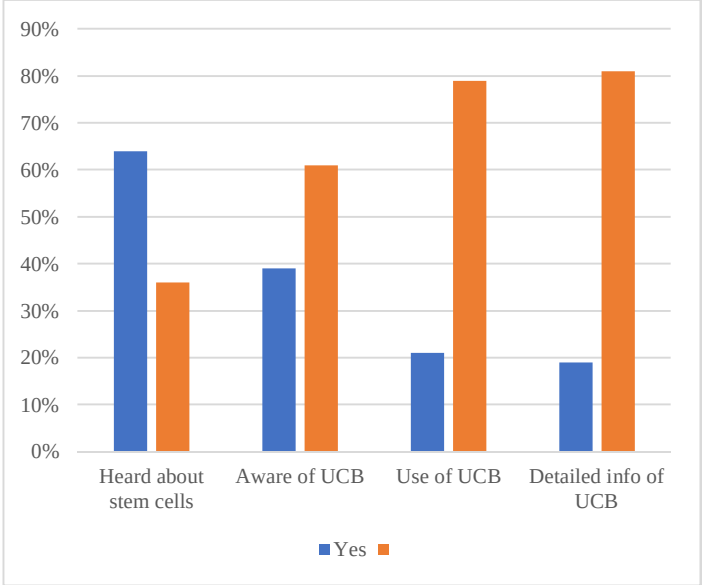


Fig. 1 Indication of Basic knowledge of stem cell banking population

IV. DISCUSSION

According to this study we found that there is large information barrier in rural area of Maharashtra. There are some people who wants to preserve their babies stem cells but due to lack of information they were unable to preserve it. According to this study 70% people heard about stem cells it, means they have some basic idea about stem cells but they don't have information in details. This may happen due to not getting proper education and knowledge. Some people have negative mindset toward stem cells. People not ready to change their attitude to accept and implement new technology. Still some people think this is not that much useful technology. Those 30% people who never heard about stem cells they all are from village background, so they are not aware to stem cells and their benefits in medical. When we asked for source of information, near by 34% people got information from brochures kept in hospitals for advertisements. 20% people already read about or they have information on stem cells, maybe it from due to their job and education. And others got information from different sources like, doctors, friends, and relatives. Only 50% doctors or gynaecologists provide information to their patient about stem cells. It happens due to lack of knowledge or interest of doctors. Sometime doctors didn't get much more time to deliver concept of stem cells to patient. There are also some doctors who have some negative opinion about UCB banking.

During interaction with people, we found that still there are some people who put trust on stem cells and their use in future and they invested their money to preserve their babies' cells but only few did it. When we try to look out reasons behind this, and we found that there are different reasons like some families are unable to afford storage charges or fee due to financial status. Sometime non availability of stem cell banks in their city also creates problems. Due to medical emergency also, one reasons for missing chance of CBB. The present study explored awareness, attitude, and knowledge of the people, about UCB banking. The general awareness levels were found to be poor amongst people with an overall positive attitude towards UCB banking. About 75% of people estimated their knowledge on UCB banking as poor and very poor, and majority derived the information from the representatives of private UCB banking companies. In this study, though less than half (21%) understood exactly the correct meaning of UCB banking, two-third remained unclear about its potential uses.

This study shows that there is almost total lack of knowledge in both the groups (general population and doctors) about the indications, utility and other technical aspects of cord blood banking. people should be educated so that they can take the decision regarding cord blood banking on them own. It is also important that the doctors should have a thorough and complete knowledge regarding the same, so that they can help their patients to deal with the issues of banking. The obstetricians and paediatricians should take a central role in educating their patients and guide them and provide them with proper information regarding the banking options.

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We need to arrange some seminar by institute and cord blood bank on information on stem cells so general people also get the clear idea and their future use for medical purpose. We believe that in our regional reality Hospitals should invest more money and time in promoting UCB donation, mostly because our data show that midwives don't usually provide with information about this topic. Finally, we believe that professionals and institutions should make an effort to provide updates, education and evidence-based information about UCB donation, focusing on both the usefulness and limitations of UCB stem cells. We suggest workshops and seminars need to be conducted as educational initiatives to promote awareness on UCB banking and clarify the benefits of public and private UCB banking.

V. CONCLSION

In this era of fast-growing medicine, the Stem cells therapy will most useful for different disease as most effective techniques. The present study highlighted that people in a developing country like India some did not believe in the potential use of UCB banking, in contrast others thought it is an important for future. In current situation need to spread more awareness of stem cells and their uses. Some families have capacity to afford stem cell banking but due to lack of knowledge or information they unable to take advantage of UCB banking. Hospitals, Institute and young generation need to take action on awareness of stem cell banking. Some doctors also have to change their vision about stem cell banking. The obstetricians and the paediatricians should take a central role in providing the correct information to would be parents to help them in taking a correct decision. There are some people who already know potential of stem cells and they also need invested their free time to spared awareness in people. Indian government need to invest or raise money for awareness campaign and developing research technology.

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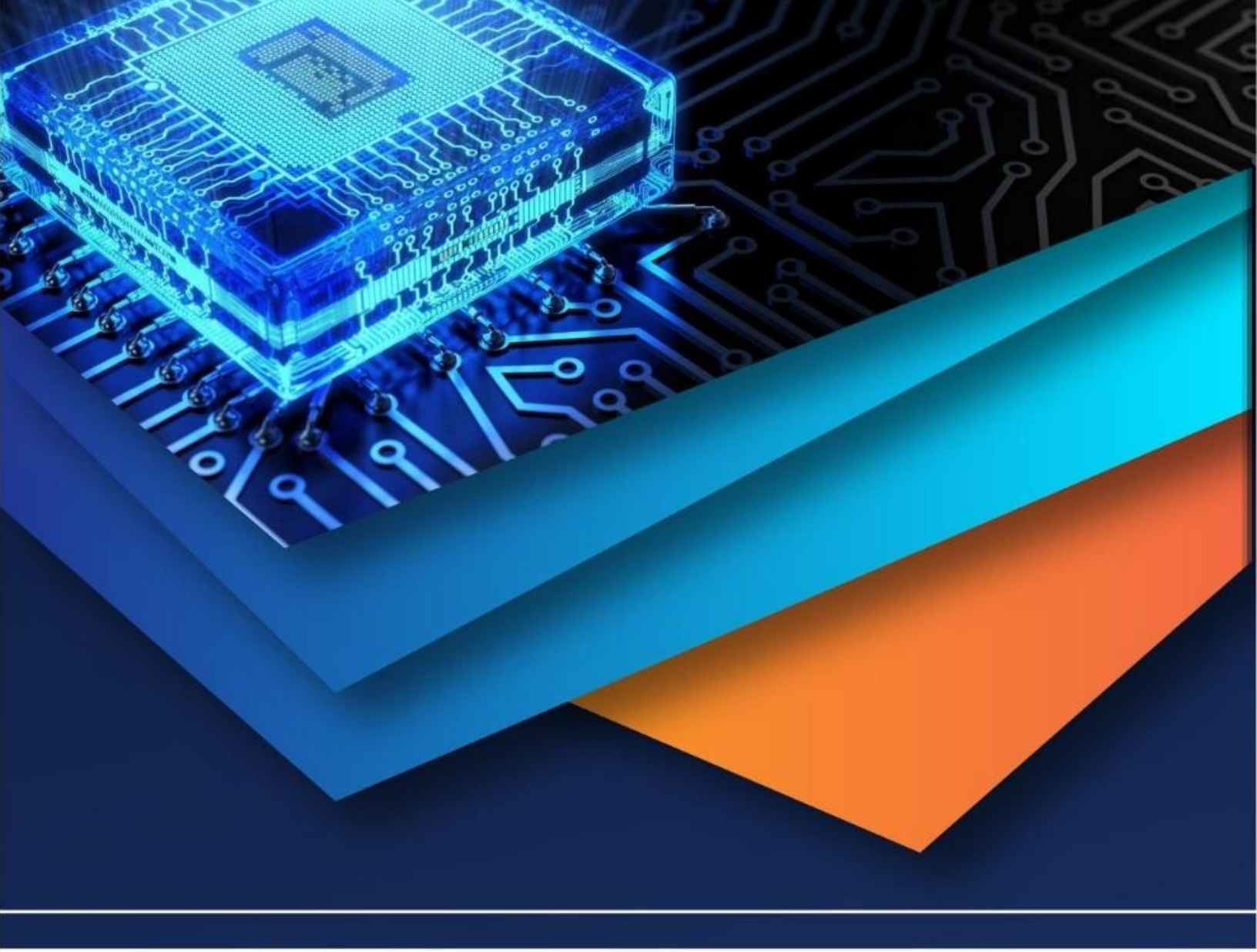
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