KNOWLEDGE, ATTITUDE AND AWARENESS OF STEM CELLS AMONG GENERAL DENTIST -PROSPECTIVE STUDY

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ABSTRACT

AIM: The aim of the current survey was conducted to assess the knowledge, attitude and awareness regarding the stem cells among general dentist.

METHODS AND MATERIAL: This is cross-sectional web based questionnaire survey conducted among general dentist in Tamil Nadu. The self-administered questions related to awareness of stem cells was collected from 500 subjects. The statistical analysis was done using Statistical Package for Social Sciences SPSS (V 22.0). The frequency distribution was computed.

RESULTS: This survey revealed that 466 (93.2%) had knowledge about stem cells. 268 (53.6%) responded known about the usage in bone formation and repairing orofacial cleft. 50.9% of them are also aware of various applications of dental stem cells. 34.7% of dental professionals, are the high cost, lack of awareness, ethical difficulties, and insufficient knowledge of stem cells among dental practitioners.

CONCLUSION: The result of the current study showed that it clearly implies that the population was aware of stem cells as a treatment modality for correcting skeletal deformities.

Keywords: Stem cells, quality of life, Facial deformity.

1. INTRODUCTION

Stem cells are body repair cells that play a critical role in the maintenance and regeneration of organs and tissues throughout an organism's lifespan. Their primary goal is to replace dying cells and restore damaged tissues 1. Many scientists have stated that stem cells might potentially provide cures and treatments for a variety of ailments, including cancer and cardiovascular disease, igniting hopes of stem cell-based replacement therapy in a medical environment based on vast stem cell research discoveries 2.

Embryonic stem cells may be guided to differentiate along a variety of cell lines, and they appear to hold great potential for reducing a variety of disorders. However, such research has legal, ethical, and societal ramifications. William Sedgwick used the term "stem cell" in 1886 when studying the regeneration properties of plants. E.B. Wilson coined the phrase a decade later to describe cells in the roundworm Ascaris that had kept their genetic material and looked to regenerate 3. In the 1970s, Beatrice Mintz and Karl Illmensee expanded on this study, discovering that embryonic cancer cells put into a developing mouse embryo at the blastocyst stage result in normal mosaic mice. In Cambridge, researcher Robert Edwards was also experimenting with transgenic mice at the time 4, 5.

This progenitor cell has a wide range of applications, including continued root formation, regeneration of an immature tooth with extensive pulp damage, periodontal regeneration, biological tooth, and stem cell-based
therapies, all of which are gaining worldwide attention due to their numerous advantages. Dental experts have been experimenting with stem cells to see if they might help with both oral and systemic health issues. Postnatal stem cells have been identified from primary teeth as a result of this study. The current survey was conducted to evaluate knowledge, attitude and perception of stem cells among general dentists.

II. METHODOLOGY

A cross-sectional descriptive questionnaire survey was conducted among practising general dentists in Tamil Nadu using an online questionnaire form. With the help of Google Forms from the Google site, a web-based questionnaire form was created. The questionnaire was pretested on ten general dentists. After removing ambiguous and inappropriate items, the questionnaire was completed. To estimate the sample size, a pilot research was done. After conducting a pilot study, the final sample size was determined to be 500 people. A structured questionnaire was framed which contained 10 questions knowledge, attitude and perception of stem cells among dental practitioners and then online questionnaire link was forwarded to 500 general dentist. A convenient sampling technique was used. All participants completed questionnaires with duration of three months from March to May 2021. After a brief introduction on the purpose and intent of the study, an informed consent form was obtained from every participants involved in the survey. Confidentially of the information provided was assured and participation was purely voluntary.

The data collected were entered into Microsoft Office Excel and analyzed by using the Statistical Package for Social Sciences SPSS (V 22.0) (SPSS Inc, Chicago, Illinois, USA). The frequency distribution was computed.

III. RESULTS

In the current study, 215 (43%) of the 500 study participants were females, whereas 285 (57%) were males. A total of 182 (36.4%) of the 500 study participants had 0–10 years of experience, 216 (43.2%) had 10–20 years of experience, and 102 (20.4%) had 20–30 years of experience in dental clinic(Table-1).

<table>
<thead>
<tr>
<th>Years of experience</th>
<th>Frequency</th>
<th>Percentage</th>
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</thead>
<tbody>
<tr>
<td>0-10 years</td>
<td>182</td>
<td>36.4</td>
</tr>
<tr>
<td>10-20 years</td>
<td>216</td>
<td>43.2</td>
</tr>
<tr>
<td>20-30 years</td>
<td>51</td>
<td>10.2</td>
</tr>
<tr>
<td>30-40 years</td>
<td>51</td>
<td>10.2</td>
</tr>
<tr>
<td>Total</td>
<td>500</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Table 1: Distribution of study subjects according to years of experience

Among the 500 study subjects, 466 (93.2%) had knowledge about stem cells whereas 34 (6.8%) had don’t know about (Table-2).

<table>
<thead>
<tr>
<th>Responses</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>466</td>
<td>93.2</td>
</tr>
<tr>
<td>No</td>
<td>34</td>
<td>6.8</td>
</tr>
<tr>
<td>Total</td>
<td>500</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Table 2: Distribution of study subjects according to correct response for the knowledge of stem cells.

Among the 500 study subjects, 332 (66.4%) had given the correct responses related to differentiating types of cells whereas 168 (33.6%) had given the incorrect responses of differentiating it.
Among the 500 study subjects, 460 (93%) were aware when heard about the application of stem cells in dentistry, whereas 40 (7.0%) were not aware regarding the procedure.

<table>
<thead>
<tr>
<th>Frequency</th>
<th>Yes</th>
<th>No</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>460</td>
<td></td>
<td>93</td>
</tr>
<tr>
<td>No</td>
<td>40</td>
<td></td>
<td>7.0</td>
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<tr>
<td>Total</td>
<td>500</td>
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<td>100.0</td>
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Table 3: Distribution of study subjects according to correct response for the application of stem cells in dentistry.

In view of knowing the usage of stem cells in dentistry, 268 (53.6%) responded known about the usage in bone formation and repairing orofacial cleft, 116 (23.2%) cases had less knowledge and 116 (23.2%) cases unaware about it. Among the 500 study subjects, 182 (36.4%) were aware of source of stem cells, 216 (43.2%) were in dilemma and 102 (20.4%) were unaware of it. Around 50.9% of them are also aware of various applications of dental stem cells. The greatest barriers to seeking therapy using dental stem cells, according to 34.7% of dental professionals, are the high cost, lack of awareness, ethical difficulties, and insufficient knowledge of stem cells among dental practitioners.

IV. DISCUSSION

The current study was designed to assess the knowledge, attitude, and perception regarding stem cells among 500 general dentist. Researchers first investigated stem cells taken from adult organs, but more recently, technological discoveries have enabled research on stem cells extracted from the blastocyst, one of the earliest human biological forms. ESCs and ASCs are two types of stem cells that are categorised based on their origin and differentiation potential. ASCs are multipotent cells that can differentiate into several different types of cells, but not all of them.

ASCs are derived from bone marrow, umbilical cord, pancreas, adipose tissue, and dental pulp and are also known as postnatal stem cells or somatic stem cells. Among the 500 study subjects, 182 (36.4%) were aware of source of stem cells, 216 (43.2%) were in dilemma and 102 (20.4%) were unaware of it. Around 50.9% of them are also aware of various applications of dental stem cells. A study by Sede et al., on the other hand, found that undergraduate training and conferences/symposiums/seminars were the leading sources of information. This could be attributed to a surge in public discussion about the topic on a variety of platforms, such as greater publication of scholarly articles.

Parita K Chitroda et al revealed an interest in attending CDE programmes or conferences in the near future, which may be related to increased research and applications in this sector, as well as a lack of in-depth understanding regarding dental stem cells. This necessitates the organisation of dental stem cells associated to training/CDE programmes. In our study, around 50.9% of them are also aware of various applications of dental stem cells. The greatest barriers to seeking therapy using dental stem cells, according to 34.7% of dental professionals, are the high cost, lack of awareness, ethical difficulties, and insufficient knowledge of stem cells among dental practitioners.
V. CONCLUSION

This current survey found that dental practitioners have a high level of awareness. It showed that it clearly implies that the population was aware of stem cells as a treatment modality for correcting skeletal deformities. This necessitates the dissemination of additional information regarding advancements in dental stem cell uses, storage, banking, and guidelines at the undergraduate level, which can be accomplished through holding seminars as well as hosting seminars and conferences.

REFERENCE