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Examining the Awareness, Knowledge and Attitude of dental specialists toward Dental stem cells

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Abstract

Dental stem cells, derived from the tooth structure, are the matured stem cells which have attracted the researchers attention in the last decade. Knowledge in this field is being developed rapidly and having insight in this field among the experts seems essential. The purpose of this study was to investigate the awareness, knowledge and attitude of dental specialists in Gorgan regarding the use of dental stem cells in dentistry. The current research is a cross-sectional descriptive study that was conducted based on the design of Nourbakhsh et al. questionnaire with closed questions among 60 dental specialists in Gorgan. The obtained data were analyzed with Mann-Whitney, t-test and ANOVA tests and a significance level of 0.05 was considered. The general sample included 60 specialist dentists working in Gorgan. The average age in the whole study was 39.8 years. The average score of awareness (based on 5-0) was 3.38±0.84, the average score of knowledge (based on 11-0) was 2.6±1.58, and the average score of attitude (based on 60-14) was 47/51±4.37. The results showed that age, sex, work experience, field of expertise and activity site had no significant relationship with the awareness, knowledge and attitude of the participants The obtained data revealed that despite relatively high awareness and positive attitude, the knowledge about the use of stem cells is weak.

Keywords: Awareness, Knowledge, Attitude, Stem cells, Dentists

Introduction

In the 21st century, one of the most important advances in medical science can be called the formation of the nascent knowledge of stem cells, which is a turning point for the treatment of diseases and the reconstruction of injuries which has created great hopes for scientists and forced researchers to do extensive research in such a this field (1, 2). After the discovery of stem cells in dental pulp and countless researches on them, stem cells derived from dental pulp have been proposed as a powerful and alternative source for cord blood in clinical applications (3, 4)

Materials and methods

In this descriptive-cross-sectional study (code of ethics IR.GOUMS.REC.1402.129) 75 dental specialist working in the private and public sectors participated, and after reviewing the completed questionnaires,. In this research, the structured questionnaire of Noor bakhsh et al. (5) was used of which validity and reliability was confirmed by Cronbach's alpha of 0.85 in Isfahan University of Medical Sciences. This questionnaire included a general information section including 7 questions, an awareness section including 5 questions, and a knowledge section including 11 questions, which were awarded 1 point for a correct answer and 0 points for a wrong answer, and the attitude section included 14 questions, whose answers were in the form of a spectrum. Likert scale was as following:

Consciousness: 0-1 weak, 2. average, 3. good, 4. very good, 5. excellent

Knowledge: 0-3 poor, 4-5 average, 6-7 good, 8-9 very good, 10-11 excellent

Attitude: 0-14 poor, 15-26 average, 27-38 good, 39-50 very good, 51-60 excellent

After entering the data in spss software version 16, the data was described using the mean, standard deviation, frequency and percentage, and the average rank was reported for qualitative variables with Likert scale responses. The normality was measured with the Shapiro-Wilk test and the homogeneity of variance was measured with the Lunn test, and if the assumptions were established, the t-test or its non-parametric equivalent, the Mann-Whitney test, was used to compare quantitative variables in two groups. Also, analysis of variance or Kruskal-Wallis test was used to compare more than two groups. The significance level was 0.05.

Results

The current study was a cross-sectional descriptive one conducted on 75 dental specialists and regarding to inclusion criteria, the questionnaires of 60 people were approved for review. The average age of the studied population was 39.8 years, of which 24 were men (with an average age of 42.87 years) and 36 were women (with an average age of 37.69 years). In the score obtained for awareness, knowledge and attitude between two age groups, there was no great difference between the values. The average score of awareness (based on 5-0), was 3.38±0.84, the average score of knowledge (based on 11-0) was 2.6±1.58, and the average score of attitude (based on 60-14), was obtained 47.51±4.37. The grade "good" in the awareness section had the highest percentage among other grades.

In the knowledge section, the highest percentage was related to "poor" score and in the attitude section; it was related to "very good" score.

The average age of the studied population was 39.80 years, of which 24 were men with an average age of 42.87 years and 36 women with an average age of 37.69 years. In the score obtained for awareness, knowledge and attitude by age groups, there was no great difference between the values. The group older than 38 years got more "average" and "good" scores in the knowledge section, while the group under 38 years had more "very good" and "excellent" scores. In the knowledge section, except for the "average" score", other scores were not significantly different from each other. Also, there were more people in the group over 38 years old, except for the "very good" grade, in other grades.

Table 1. Average score of participants by gender and age

Gender/ Age	**number**	**Awareness score**	**Knowledge score**	**Attitude score**
male	24	3.29	2.54	47.33
Female	36	3.44	2.63	47.63
P-VALUE	60	0.505	0.854	0.313
38 ≥	31	3.48	2.64	47.29
38 <	29	3.27	2.55	47.75
P-VALUE	60	0.317	0.69	0.705

The Mann-Whitney test showed that there is no significant relationship between gender and awareness (P=0.505) and knowledge (P=0.854). Also, the t test showed that there is no significant relationship between gender and attitude (P=0.313).

The Mann-Whitney test showed that there was no significant relationship between the two age groups of specialists in terms of awareness (P=0.317) and knowledge (P=0.69). Also, the t-test showed that there was no significant relationship between the two age groups of dentists in terms of attitude (P=0.705). (table 1)

Table 2 shows the score obtained for awareness, knowledge and attitude toward specialty. There was no significant difference between values in the attitude section. While the knowledge and awareness of the oral medicine specialists scored more than other specialists.

Table2. The score obtained for awareness, knowledge and attitude by specialization

specialty	**number**	**Awareness score**	**Knowledge score**	**Attitude score**
pathology Oral and maxillofacial	2	4	2	46.5
Oral medicine	2	4.5	4	48.5
Pediatrics	5	3.4	2.8	48.2

Prosthetics	11	2.9	2.18	45.45
Oral and maxillofacial surgery	7	3.71	2.71	48.28
Orthodontics	9	3.44	2.77	47.88
Restorative dentistry	10	3.4	2.3	48.5
Endodontics	7	3.42	3	48.85
Periodontology	3	3	2.66	48.33
Radiology	4	3.25	2.5	44.75
Total	60	3.38	2.6	47.51
P- VALUE		O.4	0.97	0.77

Among seven of the ten available specialties, the "good" grade is the most frequent in the knowledge section. In the knowledge section, the "weak" grade was the highest in all disciplines. Also, the grade of "very good" was the most frequent in all specialties. The Kruskal-Wallis test showed that there was no significant difference between awareness and knowledge between different specialties (0.4 and 0.979, respectively). It was also observed with the ANOVA test that there was no significant relationship between different specialties and attitude (P=0.775).

Among the 60 participants, 5 people (8.3%) had work experience less than 5 years, 26 people (43.3%) between 5 and 10 years and 29 people (48.3%) more than 10 years. The group with more than 10 years of experience obtained more "average" and "good" grades in the knowledge section, while the group with 5 to 10 years of work experience had more "very good" and "excellent" grades. In the knowledge section, except for the "average" score, the group of more than ten years included the majority. Also, except for the "very good" grade, the group of more than 10 years included more people in other grades.

The data were subjected to the Kruskal-Wallis test and it was observed that there was no significant difference between knowledge and work experience (P 0.452 and 0.774, respectively). Also, ANOVA test showed that there was no significant relationship between work experience and attitude (P=0.246).

About the scores obtained for awareness, knowledge and attitude by place of activity in the knowledge section, inconsistent trends were seen in the scores by location of activity. In the knowledge section, the "weak" score was more numerous among all areas of activity. Also, the score of "very good" was the highest among all the activity sites.

The data were subjected to the Kruskal-Wallis test and it was observed that there was no significant difference between awareness and knowledge with the place of activity (P 0.742 and 0.75 respectively). Also, the ANOVA test showed that there was no significant relationship between the place of employment and attitude (P=0.986).

Discussion:

In the present study, there was no significant difference between the two age groups older than 38 years and younger than 38 years in terms of awareness, knowledge and attitude, although it was expected that due to the relatively new knowledge of dental stem cells, the group younger than 38 years to have higher grades due to newer training courses in such a this field (6). Many similar studies (7-10) found this awareness higher in dentists over 35 years of age, which was consistent with our study.

There was no significant difference between male and female gender in terms of awareness, knowledge and attitude. Sede et al. reported this knowledge in male dentists as 84.7% and in female dentists as 73.8% which was more common in men. However, in this study, women showed less awareness but more knowledge, and this may be due to women's better acceptance of modern science and men's resistance in this matter. This was similar to Abedi et al. results (11).

In this research, no significant difference was seen between different specialized fields in terms of awareness, knowledge and attitude. Since it was not possible to homogenize the number of experts in each specialty, it was not possible to compare the awareness, knowledge and attitude of experts in different fields. Oral medicine specialists and oral pathologists had the highest scores, respectively. This can be attributed to the nature of these fields, which include a wider range of research than other which are practical and clinical in nature. Prosthetists and periodontologists had the lowest scores, respectively. However, it was expected that awareness in the field of periodontology would be higher due to the presence of stem cells in the periodontal tissues.

In the knowledge section, oral medicine and endodontic specialist had the highest score, respectively, pathologists and prosthesists had the lowest score, respectively. In the field of endodontics, due to the presence of stem cells in the pulp and peri-apical tooth, the specialist has more encounters with the basics of stem cells in dentistry, and the high level of knowledge in this field compared to other fields can be justified. However, the lack of knowledge in the field of pathology and pediatrics is questionable, because primary teeth have been proven to be the most non-invasive source of stem cells in medicine.

In this research, there was no significant difference between working experience of less than 5 years, 5 to 10 years and more than 10 years in terms of awareness, knowledge and attitude. Although it was expected that along with the increase in the working experience of dentists, their knowledge in this field would also increase, Goswami et al. (12) found that the level of knowledge and attitude in people with experience less than 5 years was 69.6% and 32.8%, respectively, and in people with experience between five and ten years, it was 100% and 37.5%, respectively. The contradictory results with some of these studies is related to the training dentists in the field of reconstructive dentistry being presented during the educational curriculum of the general dentistry, but in the articles with similar results to the current research, this kind of training was done after the general course.

No appreciable difference was seen between the place of activity of experts in terms of awareness, knowledge and attitude; however, it was thought that specialist dentists

working in dental school who are university professors would get higher grades than other groups.

In terms of awareness, knowledge and attitude, no significant difference was seen between the place of activity of experts; However, it was thought that dental specialists working in dental faculty who are university professors would get higher grades than other groups.

In general, in this research, the average score of awareness (based on 0-5) was 3.38±0.84, the average score of knowledge (based on 0-11) was 2.6±1.58, and the average score of attitude (based on 14-60) was. It was 47.51±4.37 These scores showed that although the knowledge and attitude of specialist dentists were in a good state, the low knowledge score indicated that there was a need to increase the knowledge of specialist dentists in the field of stem cells, and this will obtained by more study and research in the field of reconstructive dentistry. (5, 7, 8, 10, 12).

The present study showed that there is no significant relationship in the two-by-two correlations between awareness, knowledge and attitude. However, Sede et al. (7) attributed the high level of attitude to the high level of awareness about stem cells. They stated that the positive attitude expressed towards stem cells was positively and non-significantly related to knowledge about them and reported knowledge about their use in dentistry. Also, a binary logistic regression showed that awareness is the only determinant of knowledge about the use of stem cells (13).

Conclusion:

This study showed a high level of awareness and attitude and poor knowledge about the use of stem cells in dentistry among the community of dental specialist in Gorgan.

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Conflict of interest:

The authors declare that there is no conflict of interest in this article.

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