Oral Environment Improvement Effect of Oral Preventive Program Based on Dental Hygiene Process

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Abstract. This study aims to ensure the autonomy of dental hygienists through oral preventive care program based on dental hygiene process and provide a basic data for systemic and professional oral care. IBM SPSS Statistics (version 21.0) was used for data analysis, which was verified on the basis of a significant level of p<.05. Two-way repeated measures ANOVA was conducted to compare the changes in oral hygiene care indices before, during and after the application of dental hygiene process according to general features. In the results of this study, there are significant decreases in S-0HI, PSR Score and BOP, O’Leary through dental hygiene process, showing that oral prevention program is effective (p<.001). It is expected that the clinical application of this dental hygiene program would be established as an effective manual to improve oral environment.

Keywords: Oral Hygiene Care Indices, Dental Hygiene Process, Oral Preventive Program.

1 Introduction

Dental hygienists are described as the personnel who is engaged in oral disease prevention and oral hygiene[1], and these jobs of dental hygienists should be sufficiently performed on dental clinical sites. Actually, the jobs of dental hygienists should urgently shift toward on effectively improving the citizens’ oral health more effectively[2]. Dental hygiene process is a series of process of assessing the patients through data collation, conducting dental hygiene diagnosis by identifying the problems based on literatures, planning and implementing the treatment and finally evaluating it[3]. This dental hygiene process will enable the performance of oral disease prevention and oral health improvement jobs of professional dental hygienists. This research intends to identify the changes in patients’ various oral hygiene care indices before, during, and after the application of dental hygiene process through the application of this process to the operations in disease-preventive and medical office of Busan-based dental clinics. This ultimately aims to secure the dental hygienists’ job autonomy, develop and implement the oral health improvement programs and thus to provide the basic data on systematic and professional oral management.
2 Methods

Targeted at the patients that applied to some Busan-based dental clinics for oral disease preventive programs, pre-education about different examination methods and patient educations were implemented for one dentist and two dental hygienists in charge of preventive care who are sufficiently trained for dental hygiene process. Sufficient explanations about the purpose of this research were given to patients, and consents for the survey were gathered from the patients. Among 100 patients who consented to participate in questionnaire surveys, only 53 patients, who were free from systemic disease and who are appropriate as the subject for data gathering, were investigated. A questionnaire survey and oral preventive program were conducted through interviews.

2.1 Oral hygiene care indices

Dental plaque examination (O’Leary Index)[4], Simplified oral hygiene index (S-OHI)[4], Bleeding on probing (BOP)[5] and Periodontal Screening and Recording (PSR)[6] were conducted for oral hygiene care indices. After all the teeth in the mouth were stained using disclosing solutions, O’Leary Index was calculated at one point for the case that dental plaque was attached to four tooth surfaces (mesial, distal, buccal and lingual surface) and zero point for the case that dental plaque was not attached to them. O’Leary Index was calculated using dental plaque control score table[4]. For S-OHI, examinations were conducted on the buccal surfaces of the first molar teeth at the left and right sides of maxilla, the labial surfaces of maxillary and mandibular central incisors, and the lingual surfaces of the first molar teeth at the left and right sides of mandible. An examination was conducted on the food residue and dental plaque on one tooth surface. According to the above results, 0.0 to 1.2, 1.3 to 3.0 and 3.1 to 6.0 indicated excellent, good and bad oral environments respectively. For BOP, one point was given to the case that bleeding occurred, and zero was given to the case that bleeding did not occur, about 30 seconds after measuring periodontal pocket. The sum of the overall bleedings was calculated by the percentage.

For PSR[6], which is a variation of Community Periodontal Index (CPI) used by WHO’s epidemiological survey, periodontal status was examined on six areas such as the mesial buccal side, central buccal side, distal buccal side, distal lingual side, central lingual side and mesial lingual side of the designated teeth (#17, #16, #11, #26, #27, #31, #36, #37, #46, #47) identical to community periodontal index. According to all examination results, the smaller the measurement value is, the better the dental health is.

2.2 Statistical Analysis

IBM SPSS Statistics (version 21.0) was used for data analysis, which was verified on the basis of a significant level of p<.05. Two-way repeated measures ANOVA was conducted to compare the changes in oral hygiene care indices before, during and after the application of dental hygiene process according to general features.
3 Results

3.1 Change in S-0HI according to the Application of Dental Hygiene Process

According to the result of verifying the difference in the dental hygiene process of S-0HI, what showed a difference in a point of time (before, during and after) is gender (F=91.676, p<.001), age (F=80.984, p<.001), marital status (F=49.123, p<.001), income (F=78.389, p<.001), educational status (F=77.373, p<.001), employment status (F=79.653, p<.001), smoking status (F=54.019, p<.001), and drinking status (F=62.414, p<.001). These decreased statistically significantly after the application of dental hygiene process.

3.2 Change in PSR Score according to the Application of Dental Hygiene Process

According to the result of verifying the difference in the dental hygiene process of PSR Score, what shows a difference in a point of time (before, during and after) is gender (F=18.611, p<.001), age (F=18.236, p<.001), marital status (F=10.924, p<.01), income (F=8.059, p<.01), educational status (F=20.555, p<.001), employment status (F=15.534, p<.001), and smoking status (F=10.265, p<.01). These decreased statistically significantly after the application of dental hygiene process.

3.3 Change in BOP according to the Application of Dental Hygiene Process

According to the result of verifying the difference in the dental hygiene process of BOP, what shows a difference in a point of time (before, during and after) is gender (F=16.455, p<.001), age (F=17.248, p<.001), marital status (F=7.875, p<.01), educational status (F=15.914, p<.001), employment status (F=14.342, p<.001), smoking status (F=7.963, p<.01), and drinking status (F=11.955, p<.01). These decreased statistically significantly after the application of dental hygiene process.

3.4 Change in O’Leary index according to the Application of Dental Hygiene Process

According to the result of verifying the difference in the dental hygiene process of O’Leary index, what shows a difference in a point of time (before, during and after) was gender (F=84.067, p<.001), age (F=74.445, p<.001), marital status (F=54.057, p<.01), income (F=63.558, p<.001), educational status (F=71.618, p<.001), employment status (F=82.216, p<.001), and drinking status (F=41.420, p<.01). These decreased statistically significantly after the application of dental hygiene process.
4 Discussion

Through this dental hygiene process, dental hygienists can perform the activities regarding oral disease prevention, treatment, relevant education, and can reflect a new concept of the role of dental hygienist[7]. In dental hygiene education, Korea has long handled dental hygiene at a level of an auxiliary role of dental care. There are limits to dental hygienists’ leading education about and implementation of professional oral hygiene management. This leads to dental hygienists’ job dissatisfaction and leaving jobs, which causes a shortage of dental personnel. This research intends to identify oral environment improvement effects through the application of oral preventive program based on dental hygiene process, centered on dental hygienists that take dental hygiene education course.

According to the result of applying oral preventive program based on dental hygiene process, all S-0HI showed statistically significant decrease through dental hygiene process compared to before the application of dental hygiene process before. Oral environment has significantly improved due to the prevention, treatment and education through dental hygiene process, and S-0HI has significantly improved identically to the results of Lee and Lee’s study[8]. All the changes in PSR Score indicates statistically significant decline through dental hygiene process compared to before the application of dental hygiene process. The phase before dental hygiene process largely fell under Code 2 that was in need of oral hygiene improvement and was improved to Code 1 in age, monthly income, educational status and employment status after the application of dental hygiene process. However, it could be found that there was a need to improve oral hygiene. All the changes in BOP indicated statistically substantial decrease through dental hygiene process compared to before the application of dental hygiene process. The change in O’Leary index also revealed statistically remarkable decrease through dental hygiene process. With an identification of the numbers of colored plaque surfaces left after tooth surfaces were discolored largely using disclosing solution, O’Leary is used in various cases such as health education or preventive treatment record.

According to the results of the researches conducted by Oh et al.[9] and Lee and Lee[8] using O’Leary index conducive to motivation of a target, O’Leary index decreased due to the oral disease prevention, treatment and education, especially dental plaque control education and shows the same results as the results of this research. To reduce dental plaque, the role of a dental hygienist is very important. The dental hygienist should teach the target that toothbrush and toothpaste is important for him or her and how he or she should brush teeth. Then, the dental hygienist should keep continuous management process. By doing so, oral health will be improved.

This research has some limitations. First, this research is a result derived from dental hygiene process applied by some dental clinics as well as the period for a research was too short and many targets were not selected. Therefore, the result should be deliberately generalized. Second, this research is a cross-sectional study. So, it is possible to identify correlations but it is difficult to explain casual relationships, through this research. Nevertheless, it is meaningful to apply dental hygiene process, which is not yet applied to many dental clinics, and to derive the result. If dental clinics and hospitals, which intend to apply prevention-centered care based on the results of this research, acknowledge dental hygienists’ job autonomy and carry out
preventive care, it will be a trigger to improve the citizens’ oral health. The clinical application of this dental hygiene process to improve oral health will be hopefully established based on effective manuals hopefully.

5 Conclusion

According to the above-mentioned, even though oral preventive program based on dental hygiene process secured dental hygienists’ job autonomy in dental practices is the outcome from only some dental clinics, oral hygiene care indices changed positive after dental hygiene process was carried out. This means that oral environment has improved and the program is effective.

References