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Knowledge and Practice of Nigerian Dentists About Shortened Dental Arch Therapy (SDAT)

Conhecimento e Prática de Cirurgiões-Dentistas Nigerianos Sobre a Terapia do Arco Dental Reduzido (TADR)

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RESUMO

Objetivo: Determinar o conhecimento e prática de cirurgiões-dentistas nigerianos sobre a terapia do arco dental reduzido (TADR).
Método: Um estudo transversal foi desenvolvido usando um questionário estruturado auto-aplicável. O questionário continha informações sobre o conhecimento e a prática dos respondentes com relação à TADR. Os questionários foram distribuídos aleatoriamente entre os clínicos-gerais e residentes em instituições de Odontologia na Nigéria.
Resultados: Apenas 47 (43,5%) dos respondentes estavam cientes do conceito da terapia do arco dental reduzido (TADR). A maioria dos pesquisados não foram informados da indicação da idade para a técnica e dos critérios para a redução dos arcos dentários. O percentual de pacientes com arco reduzido situa-se entre 5%. Aproximadamente metade dos sujeitos listaram a TADR como opção de tratamente em 5% dos casos. A maioria nunca aplicou de forma ativa ou passiva a técnica em sua prática clínica.
Conclusão: O conhecimento dos cirurgiões-dentistas sobre a TADR é inferior ao considerado satisfatório. A aplicação do conceito em um país em desenvolvimento com a Nigéria parece ser inadequado neste momento.

DESCRITORES

Arcada dentária; Cirurgião-dentista; Prática.

ABSTRACT

Objective: To determine the knowledge and practice of a cross-section of Nigerian dentists about shortened dental arch therapy (SDAT).
Method: A cross-sectional study was conducted using a self-administered structured questionnaire. The questionnaire requested for information on knowledge and practice of the respondents as regards to the SDAT. The questionnaires were randomly distributed among general dental practitioners and residents (postgraduate doctors) in dental training institutions in Nigeria.
Results: Only 47 (43.5%) respondents were aware of the concept of shortened dental arch therapy (SDAT). Most of the respondents were not aware of the age group indication and the suggested criteria for active shortening of the dental arches. The percentage of patients with shortened dental arch was put at ≤ 5% by most of the respondents. About half of the respondents list the SDAT as a treatment option in ≤5% of cases. Most of the respondents have never applied active and or passive shortening in their practice.
Conclusion: The knowledge of the respondents about SDAT is generally less than satisfactory. The application of the concept in a developing country like Nigeria also appeared grossly inadequate at the moment.

KEYWORDS

Dental arch; Dentist; Practice.

INTRODUCTION

Dentists replace missing, damaged and severely decayed teeth by fixed or removable prostheses to restore or improve masticatory functions, but increasing references are being made in the dental literature to SDAT as a treatment option for the partially dentate patients[1]. In high risk groups, subjects are more prone to caries, periodontal disease and tooth loss[2]. This situation occurs particularly in the elderly with an accumulation of dental problems and where other age-related risks and limitations may arise. Restoring complete dental arches in high-risk subjects with complicated treatment may be technically possible, but may be beyond the economic resources of these patients and their health care systems[3].

Research data have shown that a shortened dental arch with intact anterior and premolar regions can provide satisfactory oral function[4,5]. The term shortened dental arches (SDA) was first used in 1981 by the Dutch prosthodontist Arnd Käyser for a dentition with loss of posterior teeth[6,7]. After clinical studies, he concluded that there is sufficient adaptive capacity in subjects with SDA when at least four occlusal units are left (one unit corresponds to a pair of occluding premolars, a pair of occluding molars corresponds to two units)[6]. Further studies have shown that there is generally no clinically significant difference between subjects with SDA of three to five occlusal units and complete dental arches regarding variables such as masticatory ability, signs and symptoms of TMD, migration of remaining teeth, periodontal support and oral comfort[3].

The WHO in 1992 stated that the retention throughout life of a functional aesthetic natural dentition of not less than 20 teeth and not requiring recourse to prostheses should be the treatment goal for oral health[8]. To guide clinicians in the application of shortened dental arch concept (SDAC), the criteria to consider before embarking upon active shortening of the dental arches have been presented and summarized[2,5] as follows: (i) major problems (caries, periodontal disease) confined mainly to the posterior region; (ii) good (periodontal) prognosis of the anterior and premolar regions; (iii) limited possibilities for restorative care; and (iv) no contraindications such as young age. It is not currently clear whether dental clinicians who are to employ these guidelines when application of SDAC is being considered are familiar with them. In addition, most studies on SDAC are confined to industrialized nations[5,6]. The few studies from Africa appeared to be concentrated in Tanzania[5,9,10]. No study from Nigeria was encountered following both manual and electronic search of published articles on this subject as at the time of the present study.

The current study was designed, therefore, to determine the knowledge and practice of a cross-section of Nigerian dentists about SDAT.

MATERIALS AND METHODS

A cross-sectional study was conducted using a self-administered structured questionnaire. The questionnaire employed[5] was modified for the purpose of the current study. All the dental training institutions in Nigeria were identified and included in this study. The questionnaires were randomly distributed among general dental practitioners and residents (postgraduate doctors) in these dental centres. Respondents who declined participation were excluded from the study. Dental consultants were excluded from the study because our experience showed poor response from this cadre of workers.

The questionnaire requested for information on knowledge and practice of the respondents as regards to the SDAT. The respondents were asked if they were aware of: the concept; the age group for which it was particularly indicated, the criteria for actively shortening dental arches and the minimum number of natural teeth the WHO recommended as the treatment goal for oral health without recourse to prostheses.

They were also asked to list what they considered to be limitations/side-effects of SDAT. In addition, the respondents were asked to indicate: if they had ever actively shortened patients' dental arches; the percentage of patients given such treatment option; the percentage of patients with shortened dental arch they see in their practice and how often they employ the concept of SDAT in their practice. The consent of the respondents was obtained at the beginning of the study and their confidentiality and anonymity was preserved.

The data was entered into a micro computer and analyzed using SPSS version 11.0. Summary statistics were generated. The relationship between the gender of the respondents and their awareness of SDAT was determined using Chi-Square statistics. The level of significance was set at 0.05.

RESULTS

Out of the one hundred and sixty copies of the questionnaires that were distributed, one hundred and eight respondents returned their filled copies of the

questionnaire. This gave a response rate of 67.5%. Out of the one hundred and eight respondents that participated in the study, there were 57(52.8%) males and 51 females (47.2%).

The result of the knowledge of the respondents about SDAT is presented in Table 1. Less than half of the respondents 47(43.5%) were aware of the SDAT. Out of those who were aware, 27 (57.45) were males. There was no statistically significant difference in the level of awareness between the males and females respondents (Chi-Square=2.391;df = 2; P= 0.302). About one- quarter of the respondents, 29 (26.8%) were aware of the fact that the concept is particularly indicated for the middle-aged and elderly. Most of the respondents (78.0%) indicated that they were not aware of the criteria for active shortening of the dental arches. None of the respondents was able to present the summary of the criteria for active shortening of dental arches (Table 1).

Table 1. Knowledge of respondents about SDAT.

Questionnaire items	Response	Frequency	
		n	%
Awareness of SDAT	Yes	47	43.5
	No	47	43.5
	Not sure	14	13.0
Age group	Children	0	0.0
	Young adults	8	7.4
	Middle-age	6	14.8
	Elderly	3	12.0
	Do not know	3	21.0
	Missing item	8	44.4
Awareness of suggested criteria for shortening of dental arch	Yes	9	8.3
	No	85	78.0
	Not sure	7	6.4
	Missing	7	6.5
Ability to reproduce the suggested criteria for active shortening of dental arch	Fully	0	0.0
	Partially	2	1.9
	Not at all	106	98.1
Ability to reproduce the minimum number of teeth recommended as treatment goal for oral health by WHO without having to recourse to a prosthesis	Accurately	17	15.6
	Inaccurately	22	20.2
	Missing item	69	63.9

Only few respondents were aware of the fact that the retention of natural dentition of not less than 20 was the treatment goal for oral health as stated by the World Health Organization (Table 1). The result of the practice of the respondents as regards to the shortened dental arches is presented in Table 2. Most of the respondents, 78.7% had no experience on active shortening of dental arches. The percentage of patients with shortened dental arches was put at ≤5% by most respondents. About half of the respondents list the SDAT as a treatment option in ≤5% of cases. Most of the respondents have never applied the concept (active and passive shortening) in their practices.

Table 2. Experience of respondents on SDAT.

Questionnaire items	Response	Frequency	
		n	%
Previous history of prescription of active dental arch shortening	Yes	11	18.2
	No	85	78.7
	Not sure	9	8.3
	Missing item	3	2.8
Percentage of patients in which SDAT was given as a Rx option	≤5	50	46.3
	>5≤10	8	7.4
	>10	6	5.6
	Missing item	44	40.7
Percentage of patients with SDAT seen in practice	≤5	11	10.2
	>5≤10	3	2.8
	>10	1	0.9
	Missing item	93	86.1
Frequency of application of SDAT in patients with sound anterior and premolar teeth	Always	4	3.7
	Sometimes	2	1.9
	Often	14	13.0
	Rarely	11	10.2
	Never	41	38.0
	Missing item	36	33.3
No. of teeth normally employ for complete dentures occlusion	1-8	1	0.9
	1-7	80	74.1
	1-6	5	4.6
	1-5	2	1.9
	Missing item	20	18.5

DISCUSSION

The response rate recorded in this study was comparable to that reported by others authors[2], lower than previous report[5] but much higher than that the value presented by other study[11]. Most of the respondents in the other study[2] were aware of the SDAT unlike in the current study and the another study[5]. There was no statistically significant difference in the level of awareness between the males and the females. About one-third of the respondents were aware of the age group for which the therapy is particularly indicated. Previous publications[2,12] suggest that the concept is particularly indicated for the middle-aged and elderly with limited possibilities for complicated restorative dental care. In high risk groups, subjects are prone to caries, periodontal disease and tooth loss[2]. This situation occurs particularly in the elderly with an accumulation of dental problems and where other age-related risks and limitation may arise[2]. In addition, most respondents are not familiar with the criteria for active dental arch shortening and

they are also not aware that the WHO[8] has adopted as a goal for oral health the retention throughout life of a functional, aesthetic natural dentition of not less than 20 teeth and without recourse to prostheses. It appears the knowledge of the respondents about the concept is not adequate at the moment.

Obvious discrepancy between theoretical and practical acceptance of SDAT among dentists in many countries had been reported[11-13]. The therapy was widely accepted but not widely practiced[5]. The result of the current study appears to support this assertion. Only few people appeared to have applied the therapy of active shortening of dental arches. Most of the respondents have never applied the concept (i.e. neither the active nor the passive shortening of dental arches). The proportion of patients ever given the treatment option and the proportion of patients with SDA that come to the practice of the respondents does not appear remarkably at variance with previous reports[2,5,12,13].

Most of the respondents employ 1-7 teeth for their complete denture occlusion. Many dentists suffered from the '28-tooth syndrome'[6,15]. The perceived need to restore lost teeth up to the second molars, not only in the natural dentition but also in complete edentulous arches regardless of the peculiarities of the individual patients and their needs calls for education in this regard. The shortened dental arch concept offers an alternative treatment that is also less complicated, less time-consuming less-expensive but with satisfactory oral functions[6,15-18]. It is not very clear at the moment why the concept is not very popular among dentists particularly in developing countries like Nigeria. However, it appears lack of adequate knowledge and understanding of the concept may be responsible for this behaviour in Nigeria.

CONCLUSION

The knowledge of a cross-section of Nigerian dentists about the shortened dental arch therapy appeared not adequate at the moment. The application of the therapy in a developing country like Nigeria also appears grossly inadequate. It is suggested that the therapy should be integrated into the undergraduate and postgraduate schools' curricula. It is also suggested that research should be conducted to see the effects of employing 1-6 teeth for complete denture occlusion.

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