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Knowledge, Attitude and Perception of Oral Health Among Parents of Children at Risk of Infective Endocarditis Attending Pediatric Cardiology Center of King Fahad Medical City

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Abstract

Infective endocarditis is known to be a serious complication, mostly in patients who are susceptible of cardiac conditions. It is well established that there is a relationship between oral microorganisms and the development of infective endocarditis.

Objectives: The objective of this study is to determine the knowledge of the parents of children at risk for infective endocarditis, the preventive behaviours practiced, and the oral health status of the children.

Materials and Methods: A questionnaire will be distributed to parents (n = 107) of children with known cardiac diseases using selective non-random sampling, with an age ranging from 0-12 years.

Results: Although the parents' knowledge of oral health was adequate, their attitudes regarding it were not. The parents in this study agreed that maintaining good dental health was crucial for overall body health.

Conclusion: Based on these results we can conclude that attitudes toward dental care and oral health among both parents and children need to be modified.

Keywords

Infective endocarditis; Oral hygiene; Dental caries

Introduction

Infective Endocarditis (IE) is known to be a serious complication, mostly in patients who are susceptible of cardiac conditions such as those with congenital heart disease, valve replacements, cardiac implantable electronic devices, chronic rheumatic heart disease, nosocomial infection and poor oral hygiene. It is well established that there is a relationship between oral microorganisms and the development of infective endocarditis. The causative microorganisms for infective endocarditis in most of the cases of patients with positive haemoculture are streptococci, with S. Viridans representing 50% of this group. Even under normal physiological conditions, poor oral hygiene can result in bacterima, which increases the likelihood of getting the disease permanently. Therefore, individuals who are at risk are highly encouraged to establish and maintain the most meticulous oral health habits in order to reduce the potential sources of bacteremias [1-9]. There are scarce resources in the literature regarding children's oral health with pre-existing congenital heart disease. However, some studies have shown that these children suffer poorer oral health compared with a control group. Some reasons include their frequent consumption of sugared medicines, increased susceptibility of developmental enamel defects, and negligence of oral hygiene as their worry of their cardiac condition outweighs care for meticulous oral [5-12].

Considering all these aspects, the importance of evaluating oral health conditions of children at risk for infective endocarditis is obviously overlooked, so there is a rising demand to assess the current knowledge, attitude, and perception of their parents' awareness. Therefore, the objective of this study is to determine the knowledge of the parents of children at risk for infective endocarditis, the preventive behaviors practiced, and the oral health status of the children.

Materials and Methods

In this cross-sectional study, a total of 112 parents of children with known cardiac diseases included in The American Heart Association (AHA) conditions that have a risk of IE, with an age ranging from infancy to 12 years of age and are attending the paediatric outpatient clinics at King Fahad Medical City (KFMC) during a period of six to eight weeks using selective non-random sampling. This study was approved by

the Institutional Review Board (IRB) of King Salman Heart Center, Saudi Arabia (IRB Log No. 22-482).

A self-constructed questionnaire composed of 16 multiple choice questions that were written in Arabic language was distributed to parents/caregivers. Two questions were related to participants' demographic information (sex and age group), the remaining fourteen questions were divided into four different categories covering oral hygiene habits, awareness of gingival health and plaque, knowledge and awareness of dental and general health, and attitudes towards professional dental care. Assessments of oral hygiene habits included brushing frequency and role of parents' supervision.

Data were analyzed using IBM SPSS Statistical software for Windows version 26.0 (IBM Corp., Armonk, N.Y., USA). Descriptive statistics (frequencies and percentages) were used to describe the categorical variables. A nonparametric Pearson's chi-square fitness of test was used to observe the statistical significance of observed categorical responses of 8 items of knowledge and 4 items of attitudes towards oral hygiene. A p-value of ≤ 0.05 was used to report the statistical significance of results [1-15].

Results

A total of 112 parents had responded to this study which assesses their knowledge and attitudes towards oral hygiene. Out of 112 parents, 60 (53.6%) of them answered for their male child, while the remaining 52 answered for their female child. Distribution regarding the age was the following: the smallest group was a minimum of 0 to 12 months (7.1%), while the most prevalent group were 9 to 12 years (29.5%). Regarding oral hygiene maintenance, about 50% of them had responded that their children do not brush their teeth, while only 12.5% of them were brushing their teeth twice a day. Regarding the role of parents in supervision of oral hygiene, 62.5% of them were only advising but do not watch their child brush their teeth, while 27.7% neither advice nor watch. Only 9.8% are attentive to their children by advising and watching them brush (Table 1).

Study variables	No. of Precentage (%)
Age groups	-
0 - 12 months	8(7.1)
2-4 years	25(31.3)
5-8 years	36(32.1)
9-12 years	33(29.5)
Gender	-
Male	60(53.6)
Female	52(46.4)
How many times do you brush your teeth?	-
I don't brush my teeth	56(50.0)
Once in the morning	9(8.0)
Once in night	33(29.5)
Twice a day in morning and at night	14(12.5)
Role of parents in supervision of oral	-

hygiene	
Watch and advise	11(9.8)
Only advice but do not watch	70(62.5)
Parents don't advice and don't watch	31(27.7)

Table1: Distribution of children's age, gender and items related to oral hygiene (n=112).

Regarding their knowledge of oral hygiene and awareness of gingival health, 34.8% of parents answered that plaque is soft deposits on teeth that can be removed by manual brushing, which is significantly higher than other two options of responses (p=0.002). 66.1% of them said that gingivitis could be prevented by brushing the teeth and using dental floss, which is significantly higher than other three responses (p<0.0001). Regarding the knowledge of dental and general health, when asked about the effect of sweets on dental health, 97.3% replied in agreement, which is highly statistically significant (p<0.0001), while 2.7% had responded with denial. For the awareness of oral health effect on the cardiac condition, 91.1% were aware of the significance, whereas, 8.9% had no clue about the association between them (Table 2).

Study variables	No. (%)	X2 - value	p-value
What does plaque mean?			
Soft deposits on teeth that can be removed by manual brushing	36(32.1)	15.21	0.002
Heavy deposits on teeth that needs to be removed by the dentist	39(34.8)		
Tooth discoloration	13(11.6)		
I don't know	24(21.4)		
How to prevent gingivitis?			
By brushing the teeth and using dental floss	74(66.1)	103.07	<0.0001
Taking vitamin C	11(9.8)		
Eating soft food	8(7.1)		
I don't know	19(17.0)		
Does sweets affect dental health?			
Yes	109(97.3)	100.32	<0.0001
No	3(2.7)		
I don't know	--		
Does discolored teeth affect your child's appearance?			
Yes	100(89.3)	69.14	<0.0001
No	12(10.7)		
I don't know	--		
Does the health of mouth and teeth impact the health of body?			
Yes	107(95.5)	92.89	<0.0001
No	5(4.5)		
I don't know	--		
Does treatment of toothache as important as any organ in the body?			

Yes	109(97.3)	100.32	<0.0001
No	3(2.7)		
I don't know	--		
Are regular visits to the dentist necessary?			
Yes	111(99.1)	108.04	<0.0001
No	1(0.9)		
I don't know	--		
Do you know that the condition of a child's mouth can adversely			
effect his/her heart?			
Yes	102(91.1)	75.57	<0.0001
No	--		
I don't know	10(8.9)		

Table 2: Distribution and comparison of parent's responses related to the items of their knowledge towards oral hygiene.

On the assessment of the attitude towards professional dental care, 64.3% responded that they visit the dentist only when in pain, which is statistically significantly higher than the other two responses (regularly and occasionally or never) ($p<0.0001$). Concomitantly, pain happens to be the primary reason for their last visit to the dentist in 75.9% of the respondents. Regarding the reasons of not visiting the dentist, most of them justified it with the high cost (36.6%) among the five other reasons, which is highly statistically significant ($p<0.0001$). When the parents were asked about their interest in receiving more education about oral health and its impact on overall well-being, 58% of them responded affirmatively, while 22.3% of them were not interested, and 19.7% were neutral (Table 3).

Attitudes items	**No. (%)**	**X2 - value**	**p-value**
How often do you visit the dentist?	-	-	-
Regularly	13(11.6)	50.91	<0.0001
When in pain	72(64.3)	-	-
Occasionally or never	27(24.1)	-	-
Reasons behind not visiting/dislike visiting the dentist	-	-	-
Fear	19(17.0)	20.86	<0.0001
High cost	41(36.6)	-	-
No clinic nearby	15(13.4)	-	-
No time	15(13.4)	-	-
No specific reason	22(19.6)	-	-
Reason of your last visit to the dentist	-	-	-
Toothache	85(75.9)	155.21	<0.0001
Parents advice	6(5.4)	-	-
Dentists advice	11(9.8)	-	-
Other reasons	10(8.9)	-	-
Are you interested in educating yourself about the importance of oral health, its	-	-	-

implication on general well-being (especially the heart)?			
Yes	65(58.0)	30.87	<0.0001
No	25(22.3)	-	-
I don't know	22(19.7)	-	-

Table 3: Distribution and comparison of parent's responses related to the items of their Attitude towards oral hygiene.

Discussion

According to prior researches on knowledge, attitudes, and health behaviours, the cardiac group exhibited considerably worse dental health behaviours than the healthy group [1-15]. Most of the participants in this study had responded that their children do not brush their teeth, while only 12.5% of them were brushing their teeth twice a day, which can be attributed to the fact that most of the parents in the study lack parental encouragement since they only advise but do not watch their child brush their teeth. This parental negligence of oral hygiene may be due to a greater concern with their cardiac condition [10-14], reported that there is a high percentage of children who are more mindful of brushing their teeth. It is well established that children with CHD are strongly advised to obtain vigorous dental care especially at young ages according to multiple studies. Awareness of gingival health and plaque were found to be satisfactory in our study as opposed to the study done by Suvarna et al. (Suvarna et al., 2011), which can be attributed to the fact that comprehensive dental public health programs have improved over the years in Saudi Arabia.

The participants in this study demonstrated positive attitudes towards their dentists and high awareness of the link between oral health and systemic well-being, which is in agreement [5-15]. However, most of the participants in this study stated that they visit the dentist only when in pain, which can be due to the fact that most of them justified lack of motivation to visit the dentist due to high cost of treatment, in contrast to another study, fear was the topmost reason for not visiting the dentist. It could also be due to inadequate knowledge of the preventive measures. These findings are rather surprising in the sense that a good number of the participants had ample awareness of the fact that regular visits to the dentist are necessary, as mentioned in multiple studies [1-15]. The majority of people were aware that having poor oral health puts their cardiovascular health at risk, yet in spite of this, they did not comply to literature's recommendations of regular dental visits.

Limitations to our study include no oral examination was performed to evaluate oral health status or quality of tooth brushing, and the short time of the study, as well as the small sample volume.

Conclusion

In summary, the present study concluded that Saudi Arabian parents acknowledged the value of dental health but made little attempt to put this understanding into practice. Therefore, parent's and children's attitudes towards oral health and dental care need to be improved by implementing comprehensive oral health educational programs for both children and their parents. Fortunately, most of the participants were willing to receive more education about oral health.

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