

## Evaluation of Knowledge, Attitude and Practice of Parents of Children with Cardiac Disease about Oral Health

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### Abstract

**Background and Aim:** Cardiac patients have different dental needs than healthy individuals and clinicians should be well aware of these differences. The aim of this study was to evaluate and compare knowledge, attitude and practice of parents of children with cardiac disease and healthy children.

**Materials and Methods:** In this case-control study, data were collected using a questionnaire. The study population consisted of 25 parents of children with cardiac disease and 25 parents of healthy children selected at a pediatric physician office. Both groups were matched in terms of age, gender and parents' educational level. Data analysis was performed using independent sample t-test for knowledge and attitude and Mann Whitney test for practice with  $\alpha=0.05$ .

**Results:** Based on the parents' responses, knowledge of parents was  $45.24\pm 23.29$  in the cardiac group and  $41.10\pm 20.45$  in healthy group. This difference was not statistically significant. Attitude of parents was  $79.3\%\pm 9.9$  in the cardiac group and  $78.9\%\pm 6.6$  in the healthy group. This difference was not statistically significant either. In the cardiac group, 44% brushed two times a day compared with 20% in the healthy group; 50% of the cardiac children had never visited a dentist while healthy children had regular dental visits.

**Conclusion:** In the fields of knowledge and attitude there were no significant differences between two groups, knowledge of parents in two groups was poor but their attitude was positive also practices of parents in the field of children's brushing was good but in the field of attending to dentist was poor.

**Key Words:** Oral and dental health, Cardiac disease, Knowledge, Attitude, Practice

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### Introduction

Patients with systemic diseases have different dental needs than healthy individuals and clinicians and their family members should be well aware of these differences. Cardiac diseases are among these conditions and children suffering from congenital cardiac diseases, rheumatic heart disease or valvular heart disease need special

attention in terms of dental and oral health [1]. During dental treatments, these patients are at risk of bacteremia and infective endocarditis. Infective endocarditis of heart valves is a rare occurrence especially in children (about 0.34 per 100,000 children per year) [2]. However, considering its severe and fatal complications and the fact that the most common pathogenic microorganism

responsible for this condition is *Streptococcus viridans* which is a member of the normal flora of the mouth [3,4], it is necessary to prevent its occurrence by prophylactic antibiotic therapy particularly before dental procedures [1,3].

Oral environment is a reservoir for infectious microorganisms capable of causing infective endocarditis [5]. But, there is still controversy regarding which dental procedures increase the risk of bacteremia and occurrence of infective endocarditis and what patients are at risk [5,6].

However, prophylactic antibiotic therapy might be necessary based on the type of cardiac disease and type of dental procedure [7,8].

On the other hand, children suffering from cardiac diseases have lower level of oral and dental health compared to healthy individuals [4,9,10]. Several reasons have been suggested for this issue such as continuous use of drugs containing sugar, increased prevalence of enamel developmental lesions and oral hygiene neglect due to greater concerns and attention to the child's heart condition [4].

Oral hygiene instructions are very important for dental health of children with cardiac diseases; because impaired dental health may aggravate their medical condition as well [11]. During the childhood, parents especially mothers play the most important role in oral hygiene and dental health of their children and hygienic measures taken by mothers may encourage good oral hygiene in kids for life [12]. Thus, their knowledge and attitude play a key role in receiving dental services in the first years of children's life [4,9,13].

This study aimed to evaluate the knowledge, attitude and performance of parents of children with cardiac diseases about oral and dental health in comparison with parents of healthy children.

### Materials and Methods

In this case-control study, the case group subjects were selected among parents of hospitalized or outpatient (presenting to a pediatric cardiac physician office) 2-16 year olds suffering from cardiac diseases. The control subjects were selected among parents of healthy children presenting to a pediatric physician office for reasons other than cardiac disease. The two groups

were matched in terms of age, sex and level of education of parents. Based on the Cronbach's alpha coefficient of 0.745 obtained from the pilot study on 10 subjects (n=5 in each group) and considering  $\alpha=0.05$  and  $\beta=0.2$  and using Minitab version 14 software, the sample size was calculated to be 18 for the assessment of knowledge and 22 for the assessment of attitude. Considering a dropout rate of 10%, the final sample size for the assessment of knowledge and attitude was calculated to be 25 subjects.

Data were collected using a questionnaire. The questionnaire designed for this purpose contained 26 questions for both case and control groups and 3 questions exclusively for the case group. The questionnaire contained demographic information, 11 questions about the level of knowledge, 8 questions about the attitude based on the Likert scale and 10 questions about the performance of parents in relation to the oral and dental health of their children.

Knowledge questions could be answered with "yes", "No" or "I do not know" and scored based on their importance by a pediatric dentist, pediatric cardiac physician and an oral medicine specialist. The mean of these three scores was expressed as percentage. Attitude questions had 5-choice answers and scored from 1 to 5. The total score of parents in knowledge and attitude was categorized into 5 groups of very poor (0-10), poor (20-40), moderate (40-60), good (60-80) and excellent (80-100).

Data were analyzed using SPSS version 11.5 software. Independent sample t-test was used for the comparison of knowledge and attitude and Mann Whitney U test was applied for the comparison of performance.  $P<0.05$  was considered statistically significant.

### Results

Based on answers given to knowledge questions, the knowledge score was  $45.24\pm 23.29$  for parents of children with cardiac disease and  $41.10\pm 20.45$  for parents of healthy children. Independent sample t-test found no significant difference between the two groups in terms of level of knowledge. Overall, the knowledge of both groups was found to be poor and only 36% of parents of cardiac children and 24% of the control parents

had a relatively good level of knowledge about oral and dental health (Table 1).

Based on answers given to attitude questions, the mean attitude score was  $79.3\% \pm 9.9$  in parents of children with cardiac disease and  $78.9\% \pm 6.6\%$  in parents of healthy children. Independent t-test found no significant difference in terms of attitude between the two groups. Overall, parents had a positive attitude towards oral and dental health (Table 2).

In terms of performance, 17.6% of children in both groups started tooth brushing at the age of 1-2 year (s). Mann Whitney U test found no significant difference between the two groups in terms of time of initiation of tooth brushing; 26.7% of children younger than 5 yrs. personally brushed their teeth, parents brushed their child's teeth in 47.7% and

26.7% did not brush at all. All children over 5 years of age personally brushed their teeth; 44% of children with cardiac diseases brushed their teeth at least twice a day. This rate was 20% in healthy children.

More than 50% of children with cardiac disease had no dental visits while healthy children had regular dental visits with shorter intervals.

Performance of parents in terms of brushing their children's teeth was relatively good. But parental performance was poor in terms of dental visits especially for children with cardiac disease.

### Discussion

This study aimed to assess the knowledge, attitude and performance of parents of children with cardiac disease in terms of oral and dental health in

**Table 1.** The frequency distribution of knowledge score of parents about oral and dental health

Groups/Knowledge score	Frequency of control group (%)	Frequency of case group (%)
Very poor	5 (20)	6 (24)
Poor	9 (36)	4 (16)
Moderate	5 (20)	6 (24)
Good	6 (24)	9 (36)
Excellent	---	---
<b>Total</b>	<b>25 (100)</b>	<b>25 (100)</b>

**Table 2.** Frequency distribution of attitude score of parents towards oral and dental health

Groups/Attitude score	Frequency of control group (%)	Frequency of case group (%)
Very poor	---	---
Poor	---	---
Moderate	---	---
Good	19 (76)	15 (60)
Excellent	6 (24)	10 (40)
<b>Total</b>	<b>25 (100)</b>	<b>25 (100)</b>

comparison with parents of healthy children. Approximately 60% of parents stated that a correlation exists between the cardiac disease and oral and dental health. Also, the majority of parents believed that cardiac patients need more attention

during dental procedures. Nonetheless, only 56% of parents of children with cardiac disease were aware of the need for prophylactic antibiotic therapy for their children before dental procedures and the remaining parents in the case group and the

majority of control group parents were now aware of this issue. In a study by Grahn et al, in Sweden [9] all parents of cardiac children and in a study by Silva et al, in Brazil [14], 72% of parents were aware of the need for prophylactic antibiotic therapy before dental procedures.

In our study, no significant difference existed between the two groups in terms of level of knowledge about oral and dental health. Based on the knowledge score, both groups had low level of knowledge in this regard; which is in agreement with the results of Silva [14] et al, in Brazil.

In a study by Suvarna [4] et al, the knowledge of parents of children with cardiovascular diseases was good but their attitude towards oral health was not satisfactory; which is in contrast to our obtained results.

Our obtained results were also in contrast to those of Saundels et al, [10] in London. Lack of a significant difference in level of knowledge of the two groups in our study and presence of a significant difference in this respect reported by Saundels et al, may be explained by the basic level of knowledge. In Iran, the basic level of knowledge of all parents about oral and dental health is low; which may explain the insignificant difference between the two groups. However, in the study by Saundels et al, the level of knowledge of parents of children with cardiac disease was higher which is probably due to the adequate information provided by the physicians and dentists about the importance of oral and dental health in their children.

In our study, no significant difference was found in terms of attitude between the two groups; which confirms the results of Grahn [9] in Sweden. Rai et al. evaluated the knowledge and attitude of parents of children with congenital heart diseases in India and found that these parents had a very low level of knowledge about the importance of adequate oral and dental health and the need for preventive dental measures for prevention of caries in their children. These results were similar to our findings [15].

In our study, parents overall had a positive attitude towards oral and dental health; this finding is in agreement with the result of Tijimstra [16] who showed that attitude of parents towards oral and

dental health had no significant effect on the knowledge of their children.

Considering the poor level of knowledge of parents, this positive attitude cannot encourage good oral hygiene among children. As observed in the category of performance, most children do brush their teeth but initiation of tooth brushing is usually delayed which may be attributed to the ignorance of parents about the importance of tooth brushing at early ages. Results showed that parents supervise their children brushing their teeth but when they do not have adequate knowledge, this supervision is vain. This lack of knowledge becomes more prominent when it comes to dental visits. Parents are not aware that they have to take their children for regular dental visits. By not taking their children to a dentist, they lose an important source of knowledge about dental and oral health (dentist) and this vicious cycle continues as such.

Therefore, parents should be necessarily trained on how to use their positive attitudes towards encouraging good oral hygiene in their children. This education can be done by dentists and dental staff and also by taking measures to enhance the public knowledge about preventive dentistry.

### Conclusion

No significant difference existed in level of knowledge and attitude between the two groups. Overall, parents in both groups had low level of knowledge but they had positive attitude towards oral and dental health.

### References

1. Little JW, Falace DA, Miller CS, Rhodus NL, Dental management of the medically compromised patient. 7<sup>th</sup>ed. St. Louis, Mosby; 2008:18-81.
2. Braunwald E, Fauci AS, Kasper DL, Hauser SL, Longo DL, Jameson JL. Harrison's principles of internal medicine. 15<sup>th</sup>ed. New York: Donnelly and Sons Publication; 2001, 809-810.
3. Scully C. Medical problems in dentistry. 6<sup>th</sup>ed. Edinburgh, Churchill Livingstone; 2010:123.
4. Suvarna R, Rai K, Hegde A. Knowledge and oral health attitudes among parents of children with congenital heart disease. *Int J Clin Ped Dent.* 2011 Jan-Apr;4(1):25-28.

5. Robert G. Dentists are innocent! Every day bacteremia and assessment of the evidence that dental surgical procedures are a principle cause of bacterial endocarditis in children. *Pediat Cardiol.* 1999 Sept-Oct;20(5):317-25.
6. Palmer NA, Pealing R, Ireland RS, Martin MV. A Study of prophylactic antibiotic prescribing in national heart service general dental practice in england. *Br Dent J.* 2000 July;189(1):43-6.
7. Malamed SF. *Medical emergencies in the dental office.* 6<sup>th</sup> ed. St. Louis, Mosby. 2007:24-26.
8. Dean J, Avery D, Mcdonald RE. *Dentistry for the Child and Adolescent.* 9<sup>th</sup> ed. London, Mosby Elsevier; 2011:483-485.
9. Grahn K, Wikström S, Nyman L, Rydberg A, Stecksén-Blicks C. Attitudes about dental care among parents whose children Suffer from seven congenital heart disease: A case control study. *Int J Paediat Dent.* 2006 Jul; 16(4):231-8.
10. Saunders CP, Roberts GJ. Dental attitudes, knowledge and health practices of parents of children with congenital heart disease. *Arch Dis Child.* 1997 Jun; 76(6):539-40.
11. Stecksén-Blicks C, Rydberg A, Nyman L, Asplund S, Svanberg C. Dental caries experience in children with congenital heart disease: A case-control study. *Int J Paediat Dent.* 2004 Mar; 14(2): 94-100.
12. Murray JJ. *Prevention of oral disease.* 3<sup>rd</sup> ed. Oxford: Oxford University Press; 1996, 76-80.
13. Frandsen A. Changing patterns of attitudes and oral health behavior. *Inter Dent J.* 1985 Dec; 35 (4):284-290.
14. da Silva DB, Souza IPR, Cunhga MCSA. Knowledge, attitudes and status of oral health in children at risk for Infective endocarditis. *Int J Pediat Dent.* 2002 Mar;12(2):124-31.
15. Rai K, Supriya S, Hegde AM. Oral health status of children with congenital heart disease and the awareness, attitude and knowledge of their parents. *J Clin Pediat Dent.* 2009 Summer; 33(4):315-8.
16. Tijimstra T. How successful are surveys on relationship between caries and sociocultural variables? *Com Dent Oral Epidermal.* 1981 Oct; 9 (5):230-235.