

Dental Caries Experience among Patients with Congenital Coagulation Disorders

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Summary:

Background: The oral health needs of patients with congenital coagulation disorders are significantly more severe than the average for the total population moreover, maintaining a good oral hygiene might be a problem for those patients

Objectives: Assess the dental caries experience among patients with congenital coagulation disorders.

Patients and Methods: The target sample consists of 157 patients having a congenital coagulation disorders with an age range of (5 -42) years; the results were compared to a control group consisting of 157 healthy individuals matched with the cases for age and sex. The WHO criteria (1987) were used for the assessment of individual tooth status.

Results: Both, the study and the control groups, demonstrated a very high prevalence of dental caries. However, no significant difference was found between the two groups for primary dentition in respect to caries experience; whereas for the permanent dentition the study group (patients with a congenital coagulation disorder) had significantly higher caries experience than the control group.

Conclusion: When dealing with patients having congenital coagulation disorders, a great deal of emphasis should be placed on preventive dentistry. Regular dental examinations, good home care and continued proper oral hygiene practices can be instrumental in preventing dental treatment of those patients.

Introduction:

The congenital coagulation disorders (C.C.D) are uncommon disorders, which are characterized by inherited tendency to bleed (Lightwood et al., 1971). The most common is hemophilia A, hemophilia B, and von Willebrand's disease. Inherited deficiency of other clotting factors (I, II, V, VII, X, XI, XII & XIII) are extremely uncommon (Rizza, 1986; White II, 1998).

The oral health needs of patients with C.C.D are significantly more severe than the average for the total population moreover, maintaining a

good oral hygiene might be a problem for those patients as several problem areas appear to be consistent in their population. Among these, lack of adequate dental care, the failure of the patient and/or the parents to comply with oral hygiene requests based on their emotional problems; lack of understanding of the implication of dental neglect and the failure of the dentist to motivate the parents of these patients (Casamassino, 1979; Cohen & Goodman, 1995).

It is our duty as dentists in providing care to the public to recognize those subsets of the public who do require special consideration moreover, these medically compromised patients require that

we familiarize ourselves with their conditions that affect our ability to provide safe oral hygiene care. It is due to this and as no previous Iraqi study has been done to evaluate the dental caries experience of those patients, it was decided to conduct this study.

MATERIALS AND METHODS

The target population participated in this study comprised patients diagnosed as having a congenital coagulation disorder (C.C.D), who were registered in the center of congenital coagulation disorders (C.C.D) at Al-Mansour hospital for children in Baghdad City; which is the only specialized center in Iraq to date for this group of disorders.

A review of the total number of patients registered in the C.C.D was done. The total number was 319, of which 300 were diagnosed as having a C.C.D including hemophilia A, B or C, vWD, and factor I, II, V, VII, X, XII or XIII deficiency, the remainder were having platelets disorders.

The control group consists of healthy individuals not having a bleeding problem of any kind nor having a family history of bleeding disorder, matching with age and sex to those of the study group.

All patients with C.C.D were examined in bed, where as healthy individuals were examined laid on a table and an artificial light was used for illumination using a plane mouth mirror and sickle sharp explorer. A systematic approach of the

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examination of dental caries' was adopted, starting from upper right second molar proceeding in an orderly manner from one tooth or tooth space to the adjacent tooth or tooth space and ending with the lower right second molar. A tooth should be considered present in the mouth when any part of it is visible or can be touched with the tip of the explorer without unduly displacing soft tissue. If a permanent and a primary tooth occupied the same tooth space, the status of the permanent tooth was considered only. All the data were recorded in a special chart. A numerical coding system designed by WHO (1987) was used for recording the status of permanent teeth and an alphabetical coding system for primary teeth.

Data were translated into codes using a specially designed coding sheet, and then entered into a computer system using Excel 8 computer software. The database was examined for errors using range and logical data cleaning methods, and inconsistencies were remedied. Statistical analyses were done using SPSS version 7.5 computer software (Statistical Package for Social Sciences). Means, standard deviations and confidence intervals (95%) were obtained for dmfs and DMFS values, the significant difference in the mean between the two groups was determined by using t-test (Sorlie, 1995).

RESULTS

The results revealed that only 2.2% were caries free in the study group. Whereas in the control group the percentage of individuals who were caries free was 8.1% as shown in table 1.

Table 2 shows the mean (dmfs) for the study and the control group for the primary dentition; no statistically significant difference could be found between the two groups regarding the caries experience represented by the (dmfs).

Table 1: Percentage of Caries - Free Individuals Among the Study and Control Groups Stratified by Age and Sex.

Age		Study Group			Control Group		
		No.	No.	%	No.	No.	%
5-9		49	2	4.1	49	8	16.3
	10-14	33	0	0	33	2	6.1
	15-19	32	1	3.1	32	0	0
	20+	22	0	0	22	1	4.5
2/Sex	Male	127	3	2.4	127	11	8.7
	Female	9	0	0	9	0	0
TOTAL		136	3	2.2	136	11	8.1

Fig. 1 shows that (ds) component constitutes the major part of dmfs value in both groups. The study group had a significantly higher (ds) than the control group. ($P < 0.01$).

Table 2: Caries Experience (dmfs) Among the Study and Control Groups Stratified by Age and Sex.

		Study Group		Control Group		Sig.
		dmfs		dmfs		
		No.	Mean \pm SD	No.	Mean \pm SD	
1/ AGE	5-9	48	10.42 \pm 8.11	49	8.84 \pm 7.46	N.S
	10-14	23	7.09 \pm 5.12	18	10.22 \pm 9.87	N.S
2/ SEX	Male	65	9.89 \pm 7.47	63	9.14 \pm 8.25	N.S
	Female	6	3.33 \pm 2.42	4	10.25 \pm 6.55	N.S
TOTAL		71	9.34 \pm 7.40	67	9.21 \pm 8.12	N.S

Fig. 1: Caries Experience Presented by (dmfs) Component ds, ms, fs by Age Among the Study and Control Groups.

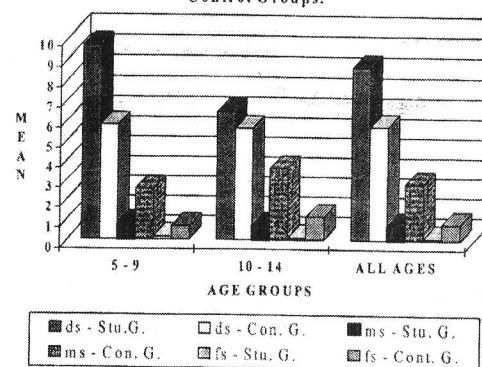
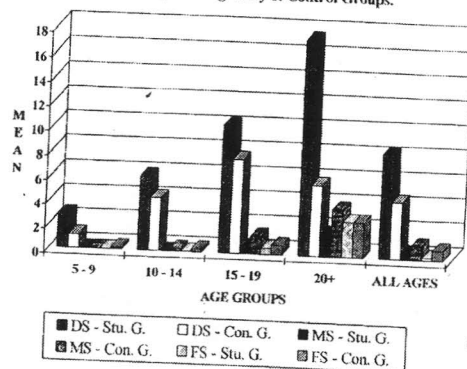


Table 3: Caries Experience (DMFS) Among the Study and Control Groups Stratified by Age and Sex.

		Study Group DMFS		Control Group DMFS		Sig.
		No.	Mean \pm SD	No.	Mean \pm SD	
1/ AGE	5-9	31	2.74 \pm 2.54	32	1.22 \pm 1.72	S*
	10-14	33	6.09 \pm 4.84	33	4.73 \pm 4.23	N.S
	15-19	32	11.38 \pm 6.89	32	9.81 \pm 5.57	N.S
	20+	22	19.82 \pm 10.37	22	12.59 \pm 8.73	S*
2/ SEX	Male	110	8.89 \pm 8.23	111	6.54 \pm 6.78	S*
	Female	8	13.50 \pm 14.00	8	7.50 \pm 6.72	N.S
TOTAL		118	9.20 \pm 8.73	119	6.60 \pm 6.76	S**

* P<0.05 ** P<0.01

Fig. 2: Caries Experience Presented by (DMFS) Component DS, MS, FS by Age Among Study & Control Groups.



Whereas for the permanent dentition the mean DMFS value for the total study group was significantly higher than that of the control group (P<0.01) as shown in table 2.

Fig. 2 reveals that (DS) component constitutes the major part of the DMFS value in both the study and control groups. The study group had a significantly higher (DS) component than the control group (P<0.001).

DISCUSSION

In the present study the percentage of caries-free individuals in the study group was only 2.2% compared to 8.1% in the control group. This percentage is lower than that reported by (Steinle & Kisker, 1970) which is 38%. As a consequence the prevalence of dental caries in this study is very high among both groups (97.8% for the study and 91.9% for the control); a finding which is in agreement with (Chiono, 1968; Lewis, 1973; and Lucas & Prescott, 1975) who suggested that dental problems in patients with hemophilia do not differ from those incurred by other patients since the patients with hemophilia and other bleeding disorders show no morphological or anatomical difference in their dentition and in general they seem to follow the same pattern regarding susceptibility to dental caries when compared with normal individuals. However, the prevalence of dental caries in the study group is higher than that reported by Steinle & Kisker in 1970 (62%); and Pislova &

Stuksova 1989 (58.5%). Moreover, the result of this study antagonize that of (Boyd & Kinirons, 1997) that a lower prevalence of caries experience was found in hemophiliacs compared to similarly aged individuals in the population of

Northern Ireland. This may be due to the effect of extensive preventive care programs applied to those patients in this community.

In the present study the mean dmfs for the total study group was higher than that of the control but the difference failed to reach the level of significance. In addition DMFS score for the total study group is significantly higher than that of the control group. The fact that dental caries is a multi-factorial disease and that the plaque is the initiating factor in dental caries and inflammatory-periodontal diseases has been established long ago. Dental caries depends on the presence of the plaque material containing the acidogenic microorganisms. All the available literatures agreed that the C.C.D do not directly cause dental problems and that the high incidence of dental problems among patients with C.C.D is caused mainly by neglect. Lack of motivation to exercise daily oral hygiene, added to the misconception of some patients' parents and physicians that oral hygiene measures like brushing will produce bleeding in the mouth; this misconception will have its effect on the dentition sooner or later. As the child grows he will get used to neglect his teeth providing the suitable environment for the bacteria responsible for dental caries; in addition to the negative attitude of those patients and/or their parents toward dental treatment particularly control of active carious lesions through fillings result in more suitable areas for food traps and as a consequence increasing the number of microorganisms. The effect on the primary teeth may be minimum but on the permanent it is more obvious; children with mouths having accumulations of food debris, plaque and having a lot of carious lesions are certainly at higher risk to develop more dental caries than those practicing oral hygiene measures and receiving dental care normally. It has been proven that children with highest number of *Streptococcus mutans* for deciduous teeth experienced a higher attack rate for the later permanent teeth (Zickert et al., 1982).

Time of exposure to the factors promoting caries experience is so important when investigating the change in caries experience.

CONCLUSION

No difference could be found between the percentage of caries-free individuals and the prevalence of dental caries among both the study and the control group. Also the study showed that there is no difference between the two groups in caries experience of primary

dentition, whereas for the permanent dentition, patients with a C.C.D demonstrated higher caries experience than the control group.

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