Risk factors of dental decay - sweets and acidic food consumption

Cristina PETRESCU, Maria Andrada ANTAL, Oana SUCIU, Delia CHEPTĂNARIU, Brigitha VLAICU, Sorina DOROFTEI and **Tudor Rareş OLARIU**

Timişoara *Victor Babes* University of Medicine and Pharmacy, Department of Hygiene, Public Health Institute, 16 Victor Babes St., 300226 Timisoara, Romania, Tel/Fax +40 0256 492101, e-mail: cpetrescu64a@yahoo.com

Abstract
In the performed study we investigated the main risk factors in dental decay occurring. The method was an epidemiological inquiry, with a specific questionnaire applying (13 items) and medical files investigation in some dental offices from Timisoara, in the year 2005. The material of study consisted of a sample with 60 patients with dental decays diagnosed and treated in the dental offices. The obtained results pointed out the following aspects: predominant age group of dental decay was 15-20 years; patients did not realize dental decay prophylaxis; the dental decay index increased proportionally with sweet food and acid beverages consumption.

Keywords: sweets, acidic food, acidic beverages, dental decay, oral cavity hygiene.

Rezumat
În studiul efectuat am investigat principalii factori de risc în apariția cariei dentare. Metoda a fost ancheta epidemiologică, cu aplicarea unui chestionar specific (13 itemi) şi investigarea fişelor medicale în câteva cabinete dentare din Timişoara, în anul 2005. Materialul de lucru a constat într-un eşantion format din 60 de pacienți cu carii dentare diagnosticate şi tratate în cabinetele dentare. Rezultatele obținute au evidențiat următoarele aspecte: grupa de vârstă de apariție a cariei dentare a fost 15-20 ani; pacienții nu au efectuat profilaxia cariei dentare; indexul de carie dentară a crescut proporțional cu consumul de dulciuri şi băuturi acidulate.

Cuvinte cheie: consumul de dulciuri, alimente acidulate, caria dentară, igiena cavității bucale.

RESUMÉ. Dans l'étude éffectuée les facteurs de risque de l'apparition de la carie dentaire ont été investigués. La méthode a été l'investigation épidemiologique avec l'application d'un questionnaire (13 items) et l'analyse des fiches médicales dans quelques cabinets médicaux de Timisoara, dans l'anné 2005. Le materiel a été formé d'un échantillon composé de 60 pacients avec des caries dentaires diagnostiquées et traitées. Les résultats obtenus ont evidentié: l`âge de l'apparition de la carie dentaire a été 15-20 ans; les pacients n'ont pas éffectué la profilaxie; l'index de carie dentaire a augmenté proportionnellement avec le consommation des sucreries et boissons accidulées.

Mots clés: les sucreries, aliments accidulé, la carie dentaire, l'hygiène.

1. Introduction

The dental decay is defined as a destructive pathological process of the hard dental tissue, with chronic evolution and finally, with lesions of the soft tissues and complications of the entire organism (Cârligeriu, 2000). The alimentary factor determines diseases of soft and hard dental tissues (Gafar, 2004). The nutrition and the life style determine the healthy dentition development and maintaining (Chirilă, 2004).

Oral hygiene is an important protective factor against oral flora development and consequently infections (Iliescu, 2002, Glăvan, 2003; Hume 2004).

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2. Materials and methods

In the performed study we investigated the main risk factors in dental decay occurring. The material of study consisted of a sample with 60 patients with dental decays, homogenous (56.7% feminine and 43.3% masculine population) and statistical representative, diagnosed and treated in the dental offices. The method was an epidemiological inquiry, with a specific questionnaire applying (13 items) and medical files investigation in some dental offices from Timisoara, in the year 2005.

3. Results and discussion

The obtained results pointed out the following aspects. Predominant age group of dental decay was 15-30 years (43.3%) (Figure 1).

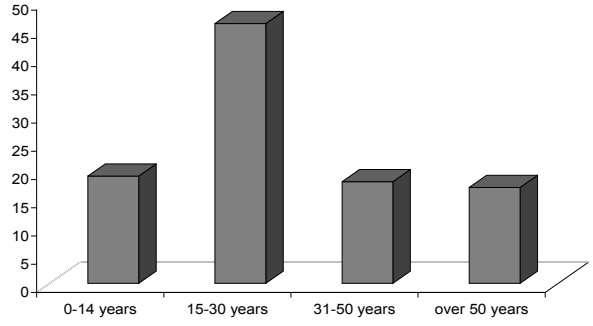

Figure 1. Patients` distribution (%) depending on age groups

A per cent of 56.7% patients were feminine and 43.3% masculine (Figure 2).

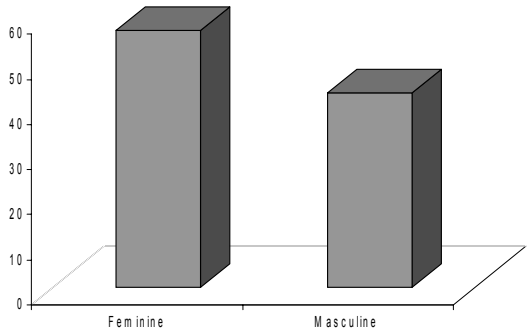

Figure 2. Patients` distribution depending on sex

In the first 7 years of life 90% of patients did not receive medication for dental decay prophylaxis (Figure 3).

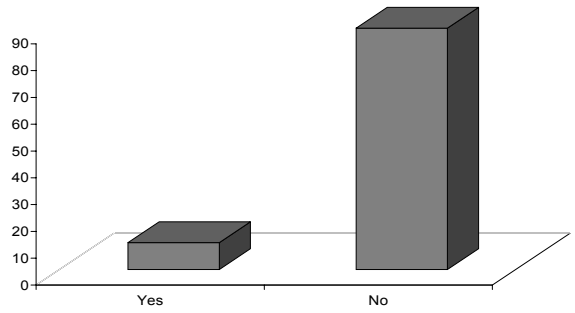

Figure 3. Patients` distribution (%) depending on dental decay prophylaxis

A per cent of 23% consumed daily sweet food (Figure 4).

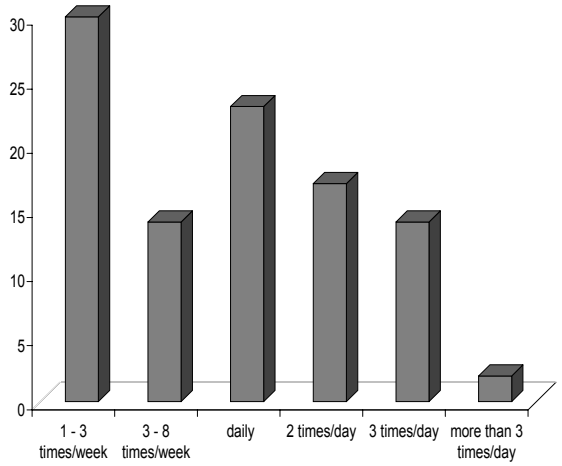

Figure 4. Patients` distribution depending on consumption frequency of the consumed sweet food

The most consumed sweet food were cereal products and cakes - 70% and sticky sweets – 40% (Figure 5).

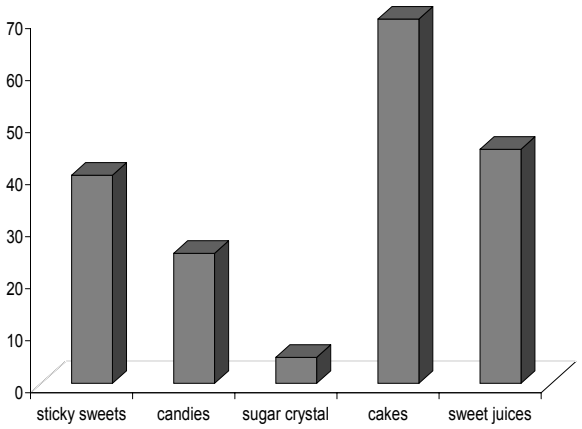

Figure 5. Patients` distribution depending on the types of the consumed sweet food

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A per cent of 80% patients did not realized oral hygiene after sweet food consumption (Figure 6).

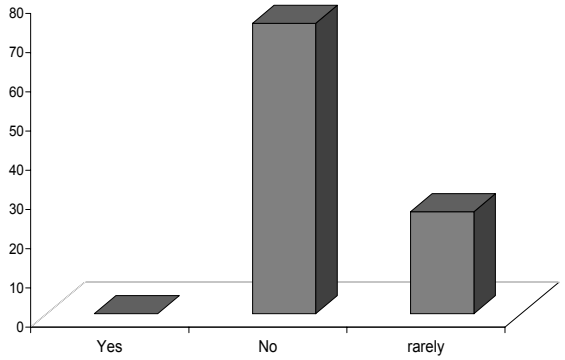

Figure 6. Patients` distribution depending on oral cavity hygiene after sweet food consumption

The most consumed acidic food were acid refreshments - 46.7% (Figure 7).

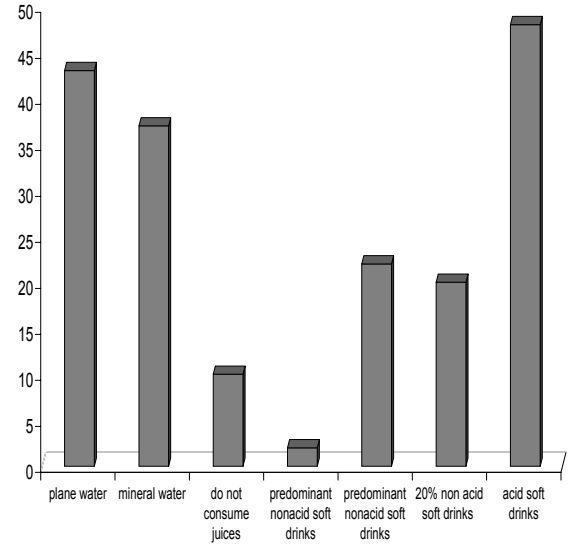

Figure 7. Patients` distribution depending on the type of the consumed soft drinks

Acidic food consumption is characterized mainly by Coca Cola (Figure 8).

After acidic food consumption, 90% of patients did not realize an oral hygiene (Figure 9).

A per cent of 36.6 % of patients realized oral hygiene daily and 30% twice per day (Figure 10).

The main diseases registered in the patient's history were obesity (28%) and reflux esophagus (17%) (Figure 11).

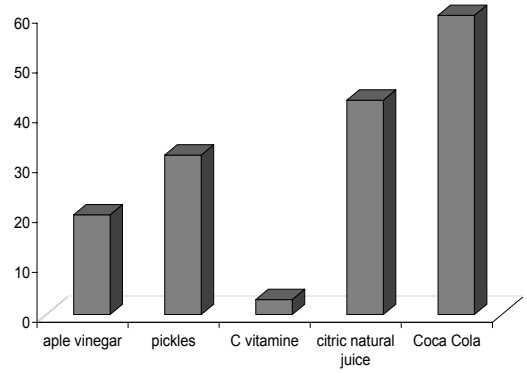

Figure 8. Patients` distribution depending on consumed acidic food

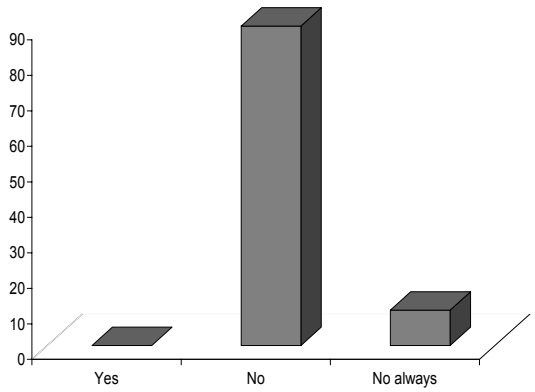

Figure 9. Patients` distribution depending on the dental hygiene after acidic food consumption

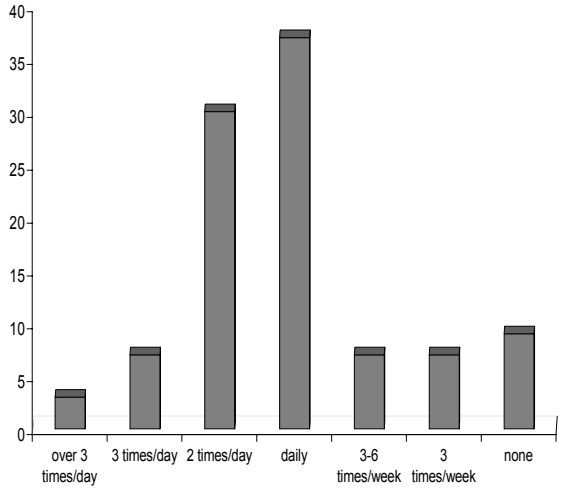

Figure 10. Patients` distribution depending on the frequency of oral cavity hygiene

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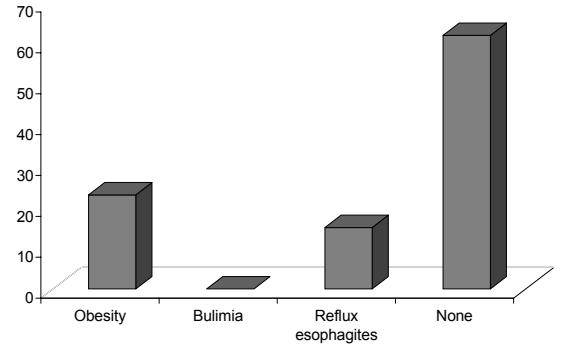

Figure 11. Patients` distribution depending on diseases

A per cent of 48% patients had a decay index counted for dental faces (DMF) 21-40% (Figure 12).

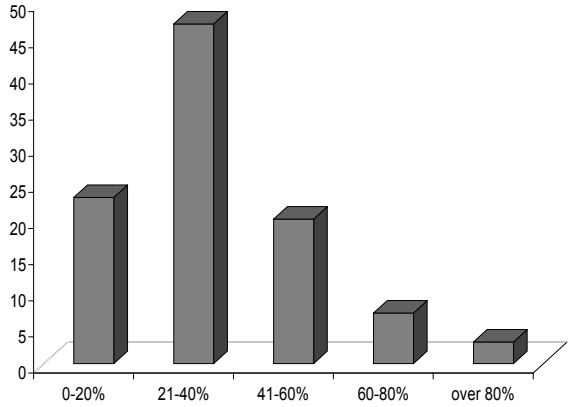

Figure 12. Patients` distribution depending on Decay Index/Surfaces

The DMF increased proportionally with the frequency and type of sweet food consumption. DMF was 40.8% for daily consumption (twice/day) (Table 1).

Table 1. Relation sweets consumption frequency - Decay Index/Surfaces

The frequency of the sweets consumption	The Decay Index/Surfaces Average
1-3 times/week	24.8%
3-6 times/week	17.5%
Daily	30.28%
Twice/day	40.8%
Three times/day	46.7%

DMF was 42.75% for chocolate and other sticky sweets (Table 2).

Table 2. Relation types of the consumed sweets - Decay Index/Surfaces

Types of the consumed sweets	Decay Index/Surfaces Average
Nuga, chocolate, caramel, and other sticky	42.75%
Refined sugar	37.25%
Candies	19.5%
Cakes	37.25%
Sweet juices	38.2%

Acid juices consumption was associated with increased DMF (40.34%) (Table 3).

Table 3. Relation soft drinks - Decay Index/Surfaces

Types of the consumed soft drinks	Decay Index/Surfaces Average
Acid and predominant acid drinks	40.34%
Non-acid and predominant non-acid drinks	18.84%
Does not consume juices	30.92%
Sweet juices	27.3%

Oral hygiene performed in investigated patients was not sufficient. For a decreased DMF (11%) an oral hygiene of 3 times per day is necessary (Table 4).

Table 4. Relation teeth washing - Decay index/Surfaces

The teeth washing frequency	Decay Index/Surfaces Average
1-3 times/week	41.56%
3-6 times/week	50.5%
Daily	37.54%
Twice/day	25.66
Three times/day	11
More than three times/day	-

A reducing of sweet food consumption at 3-6 times/week connected with an adequate oral hygiene (teeth washing more than 2 times/day) realizes a decreasing of DMF average from 45.81% to 21.86% (Table.5).

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Table 5. Sweet consumption connected with teeth washing frequency and Decay Index/Surfaces

Sweets consumption 3-6 times/weeks + teeth washing 2 times/day	Decay Index/Surfaces Average= 21.86%
Daily sweet consumption + teeth washing once/day	Decay Index/Surfaces Average= 45.81%

The age and sex seem to have a role in dental decay occurring. Lack of prophylaxis and adequate dental hygiene are clear causal factors in dental pathology. Sweets, especially nougat, chocolate, and other sticky are well known in dental plaque forming. Acid drinks, mainly coca cola attack the dental surfaces and create the optimal conditions for dental diseases. The powerful association of the sweet sticky food and of the acid drinks consumption with high DMF average at the patients with dental decay indicates the relation of these risk factors with dental decay. The history of obesity and reflux esophagus are another argues of excessive sweet food consumption in the past and of a supplementary exposure of teeth to acid environment (gastric juice).

4. Conclusions

There is a relation between sweet, acidic food consumption and improper dental hygiene with high dental decay index in the patients with dental pathology as is specified in literature (Podariu, 2004).

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