THE RISK FACTORS EVALUATION ROLE: THE DENTAL HYGIENE IN CARIES DETERMINATION

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Abstract: The purpose of the research was to verify the effectiveness of personal hygiene to prevent dental caries. The study was conducted for 24 months on a total of 207 adolescents aged 16-18 years. We made two groups: a control group of 110 subjects and an experimental group of 97 subjects. Both control group and experimental group were determined the oral hygiene and dental health status at the beginning and end of the study. In addition, to the control group we determined: caries risk assessment and risk factors to caries, a model teacher training on Bass brushing technique. The data were interpreted by examining χ^2 statistical methods, which showed statistically significant personal dental hygiene role in maintaining dental health.
Keywords: personal dental hygiene, dental caries, risk factors, prevention

1. INTRODUCTION

The prevalence of dental caries in Europe recorded remarkable decline in the last 4-5 decades. In Eastern Europe and particularly in Romania, this decrease is less marked, reaching values 2-3 times higher than in industrialized countries from Western Europe (Anderson, 2002; Blique, 1999; Pettersen, 1994, 2003).

2. AIM AND OBJECTIVES

Our aim was to verify whether the increase in motivation for dental health through the most simple measures of dental hygiene and personal knowledge of the contribution of risk factors in determining the caries disease were divided into short-term dental health maintenance.

3. MATERIAL AND METHOD

Our study was conducted for 24 month, on a sample of 207 teenagers, with ages between 16 and 18 years, students in the same school from Sibiu for 24 months. They were divided by randomized simple method into a control group of 110 students and an experimental group of 97 students. For the tooth examination used the classic kit made of mirror and dental probe. For our examination the teeth were dry by the unit air spray and we considered as caries the lesions with soft base and the white spots also. The examination was performed at the start and the end of the study by the same examiner in the dental office by visual method - tactile (touch probe with limits recommended by WHO-Featherstone, 2003). The dental data were recorded on individual sheets of prophylaxis. The experimental group received dental care only on request and the control group we determined the risk to the proposed method of caries after AAPD, based on previous experience in caries (***, 2005; Sinika, 1999). Under this method, for a low risk index corresponds to a DMF-S = 0, corresponds to a medium risk index DMF-S $\geq$ 0 and/or an active lesion and corresponds high risk for DMF-S index > 0 and / or two lesions. Patients in groups examined were classified in the risk categories according to Table 1.

	Total	Low risk	Medium risk	High risk
Control group	110	9 (8%)	18 (16%)	83 (76%)
Experimental group	97	8 (8%)	28 (29%)	61 (63%)
Total	207	17 (8%)	46 (22%)	144 (70%)

Tab. 1. Distribution of caries risk

To the experimental group I determined the status of oral hygiene by index OHI-S by eosin 2% solution coloration on the Ramfjord teeth (vestibular surfaces of teeth 11, 16, 26, 31 and on the lingual faces of teeth 36, 46). According to this index, oral hygiene was good for 0 – 1,2 score, meaning 42% of subjects, satisfactory for 1,3 – 3 score, meaning 19% subjects and unsatisfactory for 3,1 – 6 score, meaning 39% subjects (Loe, 2000; Iliescu,2002).

To this experimental group I taught the model of vibrating brush, Bass method, by which, using interactive computer program Cariogram, (***, Bratthal et al 2002), we determined individual weighting factors that can prevent new carious lesions. After 24 months, both groups were examined again and the dental data were included in Table 2.

	Control group		Experimental group	
	Begin	End	Begin	End
Decayed teeth	307	375	240	252
Missing teeth	42	73	60	67
Filled teeth	231	291	165	182
Decayed surfaces	498	588	372	389
Missing surfaces	210	354	299	334
Filled surfaces	333	396	230	252

Tab. 2. Medical data at the beginning and end of study

4. RESULTS

To confirm the significance of the results we analyzed the data using epi-info program epidemiologic WHO Geneva 1995 (Tigan et al, 2000). Being qualitative alternative characteristics, we compared statistical the number of teeth / decayed surfaces in the experimental group compared with control group at the beginning and end of the experiment. In this case by applying the χ^2 tests, statistical significance when the result is greater than the one calculated p_{table}, and that means we have insignificantly differences when $\chi^2 \leq p$ table according to table 3. For an easy comparing the data were included in the table 3.

Experimental group	Begin		End	
	χ^2	*p*	χ^2	*p*
Decayed teeth	2,02	0,15	16,47	0,00005
Decayed surfaces	484,88	0,00001	428,15	0,00001
Missing teeth	6,10	0,01	0,0005*	0,099*
Missing surfaces	30,62	0,00001	0,85	0,35
Filled teeth	4,44	0,035	18,07	0,00002
Filled surfaces	7,71	0,005	16,77	0,00004

Tab. 3. Statistical data at the beginning and the end of treatment
* Missing teeth are only insignificant results

From data analysis we found that the measure of dental hygiene personal taken by patients in the experimental group, causes high value of the indicator χ^2 at the end of the study, which leads us to conclude that by increasing the gap value indicator from p_{table} we interpret that this increase is on the association of dental hygiene personal dental health status. For missing teeth insignificant results are explained by more factors which can't be directly influenced by preventive measures and/or the short time of this experiment.

5. DISCUTIONS

Our value corresponding to the low and medium risk is nearly 30%. This is twice bigger than the reported value by the Vest Europe studies. They sustain that 70% of the teenagers between 16-18 years old are in the lower or medium risk category (Sinika, 1999; Featherstone, 2003). The statistical comparison of the caries surfaces was insignificant at the beginning of the experiment but became significant after 24 month.

Hygiene-dietary measures adopted by patients in experimental group caused an increase in χ^2 from 2.02 at baseline to 16.47 at the end of the study, increasing the difference with p spreadsheet which leads to conclusion that there was a lower increase number of decayed teeth in the experimental group compared to control group after changes produced by the annihilation risk factor for plaque.

Similarly calculated χ^2 block teeth increased from 4.44 at baseline to 18.07 at the end of study leading to the interpretation that this increase is due to increase motivation for Oral Health - Dental.

Using various methods of knowledge and control of risk factors that determine the disease is a sure way to break the bond that causes disease epidemiology. In the case of dental caries, an infectious disease diet dependent bacterial weight factor is significant. Plaque control by maintaining personal hygiene can contribute to the structural integrity of dental hard (Adair, 2003; Crall, 2003).

6. CONCLUSION

The knowledge of the factors that lead to the production of dental caries and plaque control by a personal dental hygiene help us in maintaining oral and dental health in short term.

Enhancing motivation for oral health - dental and oral hygiene improvement are key factors that can lead to reduced risk to dental caries.

The application of the individual prophylaxis concepts means to recognize the patients with high caries risk and to apply same individual measures of prophylaxis which aim the modification of the individual risk factors. More than bacterial plaque control, in this case, an important role has the association between the individual dental hygiene with the food control and the flour using in a large scale.

Computer program for assessing the overall risk to caries is a useful tool that allows shortening the risk assessment team facilitating doctor-patient work. It contributes to a better understanding of risk factors to be annihilated to prevent further damage.

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