WEB OF SCIENTIST: INTERNATIONAL SCIENTIFIC RESEARCH JOURNAL
ISSN: 2776-0979, Volume 5, Issue 11, November - 2024

DYNAMICS OF THE STATE OF DENTAL HARD TISSUES IN CHILDREN LIVING IN A FLUORIDE-ENDEMIC REGION

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Abstract
The aim of the study was to study the prevalence of dental fluorosis, the intensity of caries and the level of oral hygiene in children of different age groups living in a fluoride-endemic region. During a dental examination of 420 children of different age categories, 272 showed signs of mild dental fluorosis. Changes in the index of caries intensity, the level of oral hygiene, and the state of enamel resistance were studied in dynamics 1 and 6 months after the start of observation against the background of the use of Vinibis and R.O.C.S. Medical Minerals gel. The effectiveness of the therapy was noted.

Keywords: children, fluorosis, caries, oral hygiene.

Introduction

Fluorosis in terms of prevalence and medical and social significance is one of the important problems in dentistry. There is a constant increase in the number of people with this pathology in the world [1]. Pathogenetic therapy and secondary prevention of fluorosis have not been fully developed [2]. The presence of high concentrations of fluoride in drinking water (above 1.5 mg/l) is the main etiological factor of fluorosis [3]. The Russian Federation has vast territories that are endemic both in terms of the lack and excess of fluoride content in drinking water. Thus, in the territory of the Republic of Mordovia, 88% of springs have a lack of fluorides, and in the tap water of the city of Saransk, an increased concentration of 2.5 mg/ml was found [4]. 2 According to the classification of H. T. Dean [3], children may have a dubious, very weak and weak form of fluorosis. The questionable shape is characterized as weak enamel changes, ranging from a few white dots to random white spots arranged randomly. With a very weak shape, small matte white spots are observed, occupying less than 25% of the tooth surface, located unevenly and without a clear orientation. With a weak form, the areas with white spots are more extensive, but occupy less than 50% of the tooth surface. The color of the changes on the enamel surface varies from opaque white to light yellow spots and stripes, dull against the background of dense enamel, gradually turning into unchanged enamel. Among the enamel defects, both generalized and limited forms of fluorosis are noted. Pigment spots are mostly often

located on the vestibular surface of the upper incisors, closer to the cutting edge, in the form of spots and horizontal lines. During the examination, 80% of children living in the city of Saransk showed increased fluoride excretion. Fluorosis occurs in 10% of children aged 5-6 years, the incidence of older children reaches 72% [4]. Thus, the study of issues related to the pathogenesis, therapy and secondary prevention of fluorosis is a very urgent task. The aim of the study was to study the prevalence of dental fluorosis, the intensity of caries and the level of oral hygiene in children of different age categories living in a fluoride–endemic region.

Materials and methods of research

The study was conducted at the Department of Dentistry of the Medical Institute of the Ogarev Moscow State University (Saransk). All 420 children examined showed signs of dental fluorosis of initial (dashed or spotted) forms according to the classification of V. K. Patrikeev and signs of fluorosis of dubious, very weak, weak forms according to the classification of H. T. Dean [3].

Using the random sampling method, groups of 60 people aged 6, 9, and 12 were formed from this number of children. The next stage was the division of children within these age groups into 4 subgroups of 20 people. The 1st subgroup of patients received Vinibis, the 2nd - R.O.C.S. Medical Minerals gel, the 3rd – a combination of Vinibis and R.O.C.S. Medical Minerals gel, the 4th - a control group with signs of dental fluorosis, which had just been taught oral hygiene. The examination of the oral cavity of the study participants consisted in determining the level of oral hygiene using the Fedorov-Volodkina index (GI) and the simplified Green-Vermillion index (UIGR-

U), the caries intensity index (KPU), the state 3 of enamel resistance using the enamel resistance test (TER) before the start of treatment, after 1 and 6 months after the start of treatment. Statistical processing of the obtained results was carried out on a computer using Microsoft ® Office ® Excel® application programs, the Statgraphics® 7.0 statistical software package. The statistical significance of differences in sample averages for independent samples, with a normal distribution of expected values, was determined using the Student's t-test and analysis of variance with S. Dunnett's a posteriori test. The value p=0.05 was used as the threshold level of statistical significance. The identification of pairwise and multiple differences between indicators and correlation was carried out. The results of the study and their discussion. Out of 420 children, 142 children aged 6 years, who had dental fluorosis in 86 children (31 boys – 36%, 55 girls – 74%). Of 134 children aged 9, 91 children with dental fluorosis were identified (31 boys – 34.1%, 60 girls – 65.9%). Of 144 children aged 12, 95 children with dental fluorosis were identified (37 boys – 38.9%, 58 girls – 61.1%). All children had only mild forms of this disease (streaked or spotted forms of fluorosis according to V. K. Patrikeev's classification). Thus, the total number of children with dental fluorosis was 272 people. In each age group, a comparison group was formed (20 people each), practically healthy children, without dental fluorosis and with no caries (KPU coefficient or KPU+kp 0-1). Dental fluorosis according to V. K. Patrikeev's classification was detected in 86 children aged 6 years (spotted form – in 19 children, dashed form – in 67 children), in 91 children aged 9 years (spotted form – in 39 children, dashed form – in 52 children), in 95 children aged 12 years (spotted the shape is in 38 children, the dashed shape is in 57 children . According to the classification of H. T. Dean [3], the following forms of dental fluorosis were diagnosed in the examined children: at 6 years of age, 24 (27.9%) children had questionable, 32 (37.2%) children had very weak, 30 (34.8%) children had weak, at 9 years of age 29 (31.8%) children were noted to be doubtful, 44 (48.3%) children had very weak, 18 (19.7%) children had weak forms, at 12 years of age 33 (34.7%) children had doubtful forms, 45 (47.3%) children had very weak forms, 17 (17.8%) children had weak forms. A low baseline level of CP in all subgroups was observed in children of the earliest age category – 6 years old. In children aged 9 and 12 years, the initial CP level was significantly higher (Table 1). A comparison of the values of the average CP level in groups of children aged 6, 9 and 12 years showed that the groups of patients with fluorosis did not differ significantly from each other, while significant differences were observed from practically healthy children. The initial level of GI was the lowest in children aged 6 years. In group 1, the level of GI in 12-year-olds significantly exceeded the GI in 9-year-olds. In group 2, the level of GI in children aged 9 years

reached a significant difference with that in children aged 12 years (Table 2). A comparison of the average values of GI in parallel groups of 6-year-old children showed that the group of patients with fluorosis significantly differed from the group of practically healthy ones. A comparison of the values of the average GI level in parallel groups of children aged 9 and 12 years showed that the groups of patients with fluorosis significantly differed from the group of practically healthy ones, but not among themselves. The initial TER indicator did not show significant differences between groups of children with a tendency to decrease in older children. Moreover, a comparison of the average values in parallel groups of children aged 6, 9 and 12 years showed that the groups did not differ significantly from each other, but differed from practically healthy children. In addition, the level of TER did not exceed the conditional norm (30 points). The lowest initial level of CP in all subgroups was observed in children of the earliest age category – 6 years (Fig. 4). In children aged 9 and 12, the initial level of CP was significantly higher. A comparison of the values of the average CP level in parallel groups of children aged 6, 9 and 12 years showed that the groups of patients with fluorosis did not differ significantly from each other, while there were significant differences from practically healthy children In all subgroups after a month of observation, the GI was reduced compared with the initial level. After 6 months of follow-up, the GI level increased, but remained significantly below the initial values. Gel "R.O.C.S. Medical Minerals" surpassed 0 0.5 1 1.5 2 2.5 3 3.5 6 years 9 years 12 years 1.9 3.1 3.1 1.95 2.9 3.0 2.0 2.95 3.0 vinibis gel vinibis+gel 7 "Vinibis" in therapeutic efficacy, but their combination was most strongly influenced by GI, after 6 months of follow-up it turned out to be more effective in all age groups. The initial TER index was not increased relative to the upper limit of the conditional norm and did not demonstrate significant differences between groups of children of different age categories with a tendency to decrease in older children. After a month of follow-up in all subgroups, the indicator level decreased relative to the baseline, and despite some increase in it after 6 months, it remained significantly below the baseline level. The R.O.C.S. Medical Minerals gel was superior to Vinibis at all periods of dynamic follow-up in children aged 9 and 12 years, but the combination of Vinibis + R.O.C.S. Medical Minerals gel turned out to be the most effective. The level of the hygienic index and the level of enamel resistance during the observation period showed positive dynamics in all age categories: 1 month after the start of therapy, the values of these indicators decreased relative to the baseline, and after 6 months they increased, however, significantly lagging behind the baseline levels. The Vinibis drug was inferior to the R.O.C.S. Medical Minerals gel in terms of its effect on the dynamics of the hygienic condition, but the most pronounced effect was noted when using a

combination of these agents. The effect of Vinibis on the dynamics of the TER value was inferior to the R.O.C.S. gel. Medical Minerals", and combination therapy also demonstrated the greatest impact.

Conclusions

The spotted, more severe form of fluorosis was 2 times less common in study participants aged 6 years than in children aged 9 and 12 years. The lowest caries intensity index was observed in children aged 6 years, significantly higher in children aged 9 and 12 years. The lowest hygienic index was observed in children suffering from fluorosis, and it is also recorded in younger children. The TER result did not demonstrate significant differences between groups of children of different ages with a tendency for a lower value of the indicator in older children. A comparative assessment of the effectiveness of the therapy performed in children aged 6, 9, 12 years with dental fluorosis demonstrated a positive result of using both Vinibis, R.O.C.S. Medical Minerals gel, and their combined use, unlike children trained only in individual oral hygiene

References

1. Asrorovna X. N. et al. Clinical Application of Dental Photography By A Dentist //The American Journal of Medical Sciences and Pharmaceutical Research. – 2021. – Т. 3. – №. 09. – С. 10-13.
2. Astanovich A. D. A. et al. The State of Periodontal Tissues in Athletes Engaged in Cyclic Sports //Annals of the Romanian Society for Cell Biology. – 2021. – С. 235-241.
3. Shuxratovich S. S. et al. The Country of Dental Implanting, The Risks Involved //The American Journal of Medical Sciences and Pharmaceutical Research. – 2021. – Т. 3. – №. 09. – С. 142-146.
4. Asrorovna X. N. et al. Methods of Instrumental Treatment of Root Canals //Texas Journal of Medical Science. – 2021. – Т. 2. – С. 17-19.
5. Asrorovna X. N. et al. Clinical Application of Dental Photography By A Dentist //The American Journal of Medical Sciences and Pharmaceutical Research. – 2021. – Т. 3. – №. 09. – С. 10-13.
6. Шукурова Н. Т., Муратова С. К., Тураев А. Б. Врачебная тактика при диагностике туберкулеза полости рта //Вестник науки и образования. – 2020. – №. 18-2 (96). – С. 86-91.
7. Тураев А. Б., Муратова С. К., Джавадова Л. М. Повышение эффективности лечения заболеваний пародонта с применением местно действующего

препарата" пародиум" //Современные достижения стоматологии. – 2018. – С. 116-116.
8. Fakhriddinovna A. N. et al. Platelet condition in children with congenital cleft palate in chronic foci of infection //Достижения науки и образования. – 2019. – №. 12 (53). – С. 113-115.
9. Zoirov T. E. et al. The influence of hypertension on the Pro-oxidant capacity and lipid peroxidation in oral fluid //Central Asian Journal of Medical and Natural Science. – 2021. – Т. 2. – №. 2. – С. 46-52.
10. Абсаламова Н., Содикова Ш., Гулбоева З. ПРОГРАММА ДЛЯ ОПРЕДЕЛЕНИЯ ВЫБОРА МЕСТНОЙ ТЕРАПИИ ПРИ ВОСПАЛИТЕЛЬНЫХ ЗАБОЛЕВАНИЙ ПАРОДОНТА БЕРЕМЕННЫХ ЖЕНЩИН С ЖЕЛЕЗОДЕФИЦИТНОЙ АНЕМИЕЙ //Медицина и инновации. – 2021. – Т. 1. – №. 4. – С. 536-539.
11. Тураев А. Б. и др. ВЛИЯНИЕ ОРТОДОНТИЧЕСКИХ АППАРАТОВ НА ПАРОДОНТ //TADQIQOTLAR. UZ. – 2024. – Т. 31. – №. 4. – С. 61-64.
12. Муродилло Т. А. В. Х. Т. и др. PERIODONTAL TISSUE CHANGES IN PATIENTS WITH INFECTIOUS VIRAL DISEASES //Journal of Modern Educational Achievements. – 2024. – Т. 1. – №. 1. – С. 223-228.
13. Bahriddinovich T. A. POSITIVE AND NEGATIVE PROPERTIES OF BRACES IN THE TREATMENT OF DENTAL ANOMALIES //Journal of Modern Educational Achievements. – 2024. – Т. 1. – №. 1. – С. 195-199.
14. Bahriddinovich T. A. COMPLEX TREATMENT OF STOMATITIS IN SCHOOL-AGE CHILDREN //Journal of Modern Educational Achievements. – 2023. – Т. 5. – №. 5. – С. 100-103.