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DENTAL CARIES IN ADOLESCENTS WITH CEREBRAL PALSY

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ABSTRACT. ***Introduction.*** In cerebral palsy, spasticity of the chewing muscles is noted, which, against the background of motor disorders, adversely affects the features of the dental health of patients. ***The purpose of the study*** was to assess the incidence of dental caries and the intensity of its course in adolescents living in St. Petersburg and suffering from cerebral palsy. ***Materials and methods.*** To achieve the purpose of the study, 31 adolescents (22 boys and 9 girls) aged 14 to 17 years old living in St. Petersburg and suffering from cerebral palsy were examined. These patients made up 1 main group. For control, 75 adolescents (36 boys and 39 girls) aged 14 to 17 years old who did not suffer from any psychosomatic diseases were examined (control group 2). ***Result.*** It was found that, compared with their peers, adolescents living in In St. Petersburg and those suffering from cerebral palsy, against the background of unsatisfactory individual dental and oral care, there is a high incidence of dental caries (100%), which occurs in a decompensated form. All adolescents suffering from cerebral palsy needed dental rehabilitation measures. The low values of the index of the level of dental care (23.0%) also indicated an insufficient level of dental care among adolescents suffering from cerebral palsy. At the same time, dental caries in 13.33% of their peers did not occur at all. All adolescents in the control group performed well in individual oral care, and the level of dental care provided to them was good, which is also confirmed by indicators of the intensity of the carious process. ***Conclusion.*** Given the motor disorders that adolescents with cerebral palsy have, as well as the difficulties of oral care and dental treatment, they need special attention from dentists, who must teach parents, and then children themselves, the rules of dental and oral care, and also recommend them the most effective dental and oral care products, taking into account the low content of fluoride ion in drinking water in St. Petersburg.

KEYWORDS: *adolescents, cerebral palsy, dental caries, incidence of dental caries, intensity of dental caries, oral hygiene, level of dental care*

КАРИЕС ЗУБОВ У ПОДРОСТКОВ, СТРАДАЮЩИХ ДЕТСКИМ ЦЕРЕБРАЛЬНЫМ ПАРАЛИЧОМ

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РЕЗЮМЕ. ***Введение.*** При детском церебральном параличе (ДЦП) отмечается спастичность жевательной мускулатуры, что на фоне двигательных нарушений неблагоприятно отражается на особенностях стоматологического здоровья пациентов. ***Цель исследования*** — оценить встречаемость кариеса зубов и интенсивность его течения у подростков, проживающих в г. Санкт-Петербурге и страдающих детским церебральным параличом. ***Материалы и методы.*** Для реализации цели исследования были осмотрены 31 подросток (22 мальчика и 9 девочек) в возрасте от 14 до 17 лет, проживающих в г. Санкт-Петербурге и страдающих ДЦП. Эти пациенты составили 1-ю (основную) группу. Для контроля были обследованы 75 подростков (36 юношей и 39 девушек) в возрасте от 14 до 17 лет, которые не страдали какими-либо психосоматическими заболеваниями (2-я группа, контрольная). ***Результаты.*** Было установлено, что по сравнению со сверстниками, у подростков, проживающих в г. Санкт-Петербурге и страдающих ДЦП, на фоне неудовлетворительного индивидуального ухода за зубами и полостью рта отмечается высокая встречаемость кариеса зубов (100%), который протекает в декомпенсированной форме. Все подростки, страдающие ДЦП, нуждались в проведении стоматологических санационных мероприятий. Низкие значения показателя индекса уровня стоматологической помощи (23,0%) также свидетельствовали о недостаточном уровне стоматологической помощи среди подростков, страдающих ДЦП. В то же время у их сверстников кариес зубов в 13,33% случаев вообще не встречался. Все подростки, входившие в контрольную группу, хорошо выполняли мероприятия по индивидуальному уходу за полостью рта, а уровень стоматологической помощи, которая оказывалась им, был хороший, что также подтверждают показатели интенсивности течения кариозного процесса. ***Заключение.*** Учитывая имеющиеся у подростков, страдающих ДЦП, двигательные расстройства, а также сложности ухода за полостью рта и стоматологического лечения, они нуждаются в особом внимании со стороны врачей-стоматологов, которые должны с детского возраста обучать родителей, а потом и самих детей правилам ухода за зубами и полостью рта, а также рекомендовать им наиболее эффективные средства ухода за зубами и полостью рта, с учетом низкого содержания фторид-иона в питьевой воде г. Санкт-Петербурга.

КЛЮЧЕВЫЕ СЛОВА: *подростки, детский церебральный паралич, кариес зубов, встречаемости кариеса зубов, интенсивность течения кариеса зубов, гигиена полости рта, уровень стоматологической помощи*

INTRODUCTION

Child cerebral palsy (ICD-10 — G80) is characterized by spasticity of the masticatory muscles, which adversely affects the dental health of patients against the background of motor disorders [1]. It is especially important to provide patients suffering from cerebral palsy (CP) with good oral hygiene from childhood, which will help to preserve their dental health in later life. At the same time, a high prevalence of dental caries in children, adolescents and adults in St. Petersburg is known [2], which is promoted by insufficient fluoride ion content in drinking water [3–5]. However, the organization of dental sanitation measures for primary and secondary prevention of dental caries has significantly improved dental health in residents of St. Petersburg [6]. At present, there is no unified protocol for the management of children with cerebral palsy at dental appointments, so any measures that can increase the resistance of teeth to dental caries in children, adolescents, and adults are an urgent task of domestic practical medicine [7]. For this reason, the problem of providing dental care to patients with cerebral palsy is relevant.

AIM

To evaluate the occurrence of dental caries and the intensity of its course in adolescents suffering from cerebral palsy, living in St. Petersburg.

MATERIALS AND METHODS

31 adolescents (22 boys and 9 girls) aged 14 to 17 years were examined. All the participants lived in St. Petersburg and suffered from cerebral palsy. These patients constituted the 1st (main) group. 75 adolescents (36 boys and 39 girls) aged 14 to 17 years who did not suffer from any psychosomatic diseases were examined as controls (group 2, control group). Dental caries prevalence was assessed, which was expressed as a percentage. In addition, the intensity of dental caries was determined by the CFE index, which represents the sum of carious, filled, and extracted permanent teeth. The oral hygiene index was determined in all examined adolescents according to the method of Y.A. Fedorov and V.V. Volodkina [8]. The index of dental care level (DCL) was calculated according to the method of P.A. Leus [9].

The obtained digital material was processed by means of mathematical statistics methods. The achieved level of significance (p) was considered in all statistical analysis procedures; the critical level of significance was equal to 0.05. Cases where the probability values of the p-value ranged from 0.05 to 0.10 were considered as a tendency.

The research conformed to the ethical standards of the Committee on Human Experiments of the Helsinki Declaration on Human Experiments issued in 1975 and revised in 2000.

RESULTS

Dental examination of adolescents suffering from cerebral palsy revealed that all participants (100%) suffered from dental caries (Fig. 1). Moreover, the carious process was decompensated (Fig. 2), as the CFE index was 6.13 units (C=2.18; F=2.18; E=1.17). Obviously, the high prevalence of caries and the intensity of its course were attributed to poor dental care, as the oral hygiene index score of adolescents suffering from cerebral palsy was 2.34±0.19 units, which characterized their individual hygiene as poor (Fig. 3). The DCL index in adolescents with cerebral palsy was 23.0%. According to interpretations of this index, it shows an insufficient level of dental care for adolescents with cerebral palsy (Fig. 1).

As for the controls, the incidence of dental caries was 86.67%, as dental caries was not diagnosed in 10 adolescents (Fig. 1). The caries process in controls was compensated (Fig. 2) with a CFE index amounting to 3.44 units (K=0.15; P=3.17; U=0.12) against the background of good oral hygiene, as their hygiene index amounted to 1.37±0.21 units (Fig. 3). The control group of adolescents also showed a good level of dental care with a DCL index=92.15% (Fig. 1).

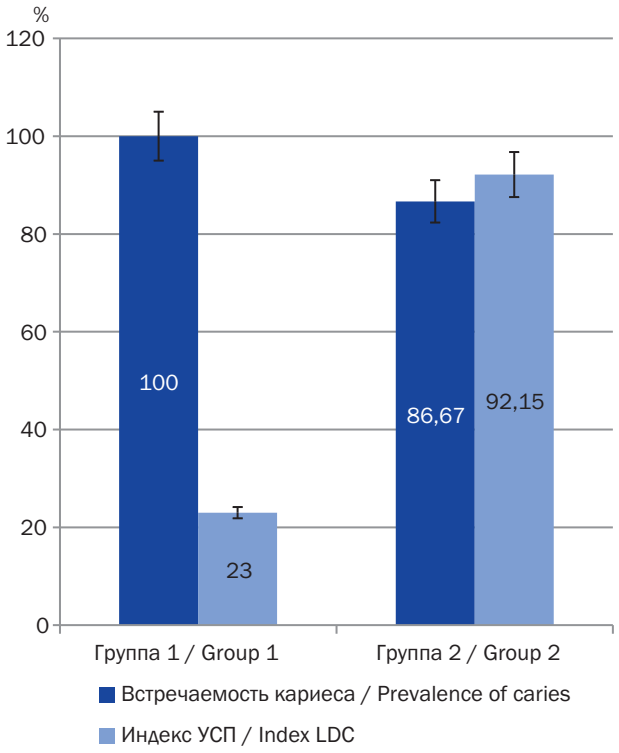

Fig. 1. Indicators of the occurrence of dental caries and the index of the level of dental care (LDC) in adolescents of the studied groups, %

Рис. 1. Показатели встречаемости кариеса зубов и индекса уровня стоматологической помощи (УСА) у подростков исследуемых групп, %

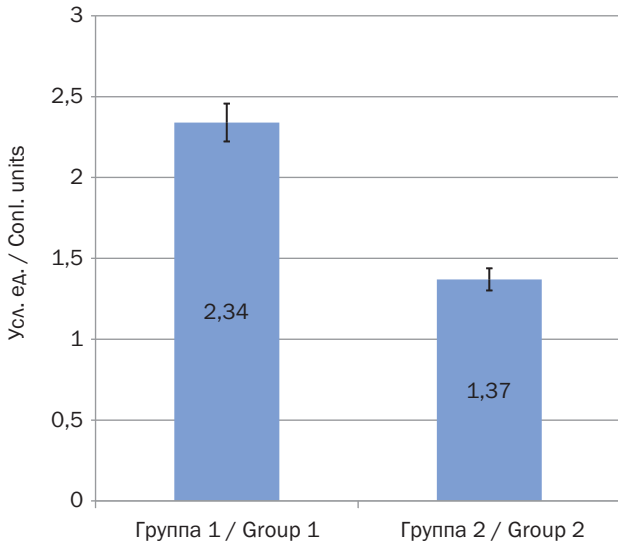

Fig. 3. Indicators of individual oral hygiene according to the Yu.A. Fedorov, V.V. Volodkina index in adolescents of the studied groups, conl. units

Рис. 3. Показатели индивидуальной гигиены полости рта по индексу Ю.А. Федорова, В.В. Володкиной у подростков исследуемых групп, усл. ед.

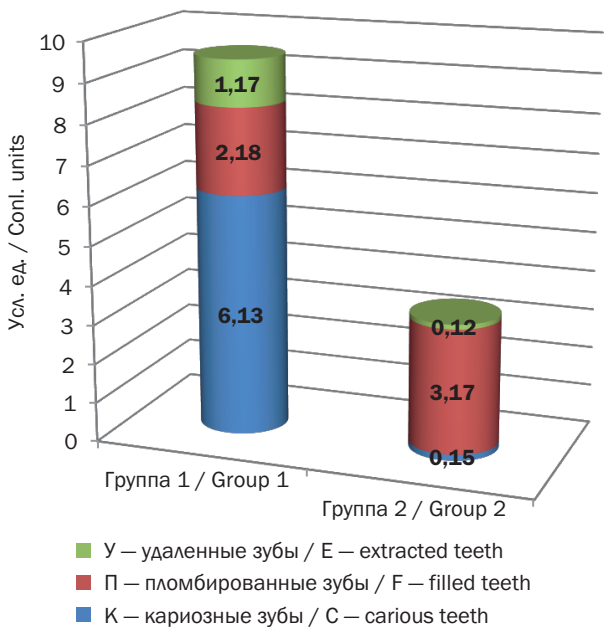

Fig. 2. Characteristics of the intensity of the course of the carious process according to the CFE index in adolescents of the studied groups, conl. units

Рис. 2. Характеристика интенсивности течения кариозного процесса по индексу КПУ у подростков исследуемых групп, усл. ед.

DISCUSSION

The research has revealed that adolescents living in St. Petersburg and suffering from cerebral palsy have a high incidence of dental caries (100%), which is decompensated, in comparison with their peers against the background of unsatisfactory individual care of teeth and oral cavity. At the same time, all adolescents suffering from cerebral palsy needed treatment or extraction of teeth, i.e. dental sanitation measures. Low values of the CFE index also indicate an insufficient level of dental care among adolescents suffering from cerebral palsy. At the same time, 13.33% (10 individuals) had no dental caries at all. All the adolescents in the control group performed well in their individual oral care activities and the level of dental care they received was good, which is also confirmed by the caries intensity indicators.

CONCLUSION

Summarizing the above, we can conclude that adolescents suffering from cerebral palsy, owing to

their movement disorders, difficulties in oral care and dental treatment due to spasticity of the masticatory muscles, need special attention from dentists. Dentists should teach parents from childhood and then children themselves the rules of dental and oral care, as well as recommend them the most effective means of dental and oral care, taking into account the low content of fluoride ion in drinking water in St. Petersburg. It is obvious that children and adolescents, as well as adult patients suffering from cerebral palsy, should be under the dynamic supervision of a dentist. Only such an approach will improve the dental health indicators of people suffering from cerebral palsy.

ADDITIONAL INFORMATION

Author contribution. Thereby, all authors made a substantial contribution to the conception of the study, acquisition, analysis, interpretation of data for the work, drafting and revising the article, final approval of the version to be published and agree to be accountable for all aspects of the study.

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