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EXPERIENCE IN THE TREATMENT OF ALVEOLITIS IN ADOLESCENTS WITH THE USE OF DENTAL GEL WITH CHOLINE SALICYLATE AND CETALCONIUM CHLORIDE

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Abstract. Based on the analysis of the treatment of 47 adolescents (aged 15 to 18 years) who sought an appointment with a dentist-surgeon for alveolitis after the removal of various teeth for chronic periodontitis or its exacerbation, acute periostitis, as well as difficult eruption or retention of the tooth, the possibility was studied and the effectiveness of the use of domestic dental gel with choline salicylate and cetalconium chloride. It has been shown that the use of this drug for alveolitis is effective and allows to stop the pain syndrome 2 to 24 hours after medical care and its use, as well as to ensure that the wells are filled with granulation tissue for 8 to 15 days with an average number of visits of 1.6–2.6 per patient and an average period of disability of patients due to alveolitis of 1.4–2.3 days. It is concluded that dental gel with choline salicylate and cetalconium chloride is advisable to use in the clinical practice of dental surgeons for the treatment of alveolitis with high effectivity.

Key words: *adolescents; tooth extraction; alveolitis; treatment of alveolitis; dental gel with choline salicylate and cetalconium chloride; periodontitis; periostitis; tooth retention; complications of tooth extraction.*

ОПЫТ ЛЕЧЕНИЯ АЛЬВЕОЛИТА У ПОДРОСТКОВ С ПРИМЕНЕНИЕМ ГЕЛЯ СТОМАТОЛОГИЧЕСКОГО С ХОЛИНОМ САЛИЦИЛАТОМ И ЦЕТАЛКОНИЯ ХЛОРИДОМ

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Резюме. На основании анализа лечения 47 подростков (возраст от 15 до 18 лет), которые обратились на прием к врачу — стоматологу-хирургу по поводу альвеолита после удаления различных зубов, по поводу хронического периодонтита или его обострения, острого периостита, а также затрудненного прорезывания или ретенции зуба, изучена возможность и проведена оценка эффективности применения отечественного геля стоматологического с холином салицилатом и цеталкония хлоридом. Показано, что применение этого препарата при альвеолите эффективно и позволяет купировать болевой синдром через 2–24 часа после его использовании, а также обеспечить заполнение лунок грануляционной тканью на 8–15-е сутки при среднем числе посещений 1,6–2,6 на одного пациента и среднем сроке нетрудоспособности пациентов из-за альвеолита 1,4–2,3 суток. Сделан вывод, что гель стоматологический с холином салицилатом и цеталкония хлоридом целесообразно использовать в клинической практике врачей — стоматологов-хирургов для лечения альвеолита с высокой эффективностью.

Ключевые слова: *подростки; удаление зуба; альвеолит; лечение альвеолита; гель стоматологический с холином салицилатом и цеталкония хлоридом; периодонтит; периостит; ретенция зуба; осложнения удаления зуба.*

BACKGROUND

Dental surgery is rarely performed among adolescents. It is associated with the routine oral cavity sanitation in them [1]. At the same time, the problem of treatment of alveolitis, which occurs after surgical tooth extraction in 2.7–17% of patients and accounts for up to 50% of all postoperative complications arising from this most frequent operation in medicine, remains relevant in the practice of dental surgeons [2]. A large number of methods for treatment as well as pharmacological agents have been described, which at different times have been used and are still used in the daily clinical work of physicians in departments and offices of dental surgery with varying effectiveness. For these purposes, gelevin, oxycelodex, solcoseryl jelly, dermazine, herpenox, argakol, and special pastes prepared immediately before applying them to the wound surface in case of infectious-inflammatory phenomena were used [3–5]. Effective treatment of alveolitis helps to reduce pain syndrom in patients suffering from this disease [6, 7], as well as to prevent atrophy of alveolar processes and arches of jaws in them [8–10]. In the last decade, with the exception of one domestic enterprise, the use of iodoform gauzes prepared in medical institutions for the treatment of alveolitis, which are very effective for this purpose in both outpatient and inpatient dental practices, has almost completely stopped, due to the special conditions needed for their production [2]. So, the search for new effective agents for the treatment of alveolitis remains relevant due to the fact that the incidence of this immediate complication of tooth extraction surgery is not decreasing [7, 9]. Recently, special attention paid to the use of ready-made dosage forms in medical practice, which is convenient for practical dentistry.

Also recently, the incidence of alveolitis has increased in adolescents. It is associated with tooth extraction for orthodontic aims, as well as in connection with preparation for orthodontic treatment [11–13]. Therefore, improving the treatment for alveolitis in adolescents is currently relevant.

AIM

To study the opportunity and evaluate the efficacy of dental gel with choline salicylate and cetalkonium chloride for the treatment of alveolitis in adolescents.

MATERIALS AND METHODS

47 adolescents aged from 15 to 18 years (29 (61.7%) boys and 18 (38.3%) girls) were observed. All of them was treated by dental surgeon for alveolitis after extracting teeth of the upper jaw (17 patients/36,17%) and teeth of the lower jaw (30 patients/63,83%) (Fig. 1). The main indications for tooth extraction were chronic periodontitis, exacerbation of chronic periodontitis, chronic pericoronitis, orthodontic indications, and acute purulent periostitis of the jaws, retention of wisdom teeth (Figure 2). When alveolitis was diagnosed, we used the generally accepted method of treatment for this disease [14].

If a blood clot was preserved at least for half of the well after tooth extraction when a patient visited the doctor, a person was included in the study. This wells after their treatment with antiseptic solutions with use of syringe, cleaning from free-lying fragments of the alveolus and tooth, food residues and decay products with the use of sharp surgical spoons or excavators № 3, were filled with dental gel with choline salicylate and cetalkonium chloride ("Holisal", Ulfa A.O., Poland). Then sterile balls of gauze were placed on the well for 15–20 minutes. It should be noted that the composition of this drug contains a number of useful substances for the local treatment of the infectious and inflammatory processes and healing of the well after tooth extraction. Choline salicylate affects pain receptors and has an anti-inflammatory effect, as well as peppermint oil, which reduces halitosis. The efficacy of the drug in treatment for alveolitis was evaluated accoding to the generally accepted method [7], taking into account the time of disappearance of a pain syndrome (in hours), the time of well replacement with granulation tissue (in days), the average time of temporary disability of patients (in days) and the number of visits required to relieve the main symptoms of alveolitis that impair the quality of life of patients [14].

The data was processed on a personal computer using a specialized package for statistical analysis Statistica for Windows v. 6.0. Differences between the compared groups were considered reliable at $p \leq 0.05$. If the probability values of "p" were in the range from 0.05 to 0.10, cases were considered as «presence of a trend».

RESULTS AND DISCUSSION

In clinical study, we took into account the peculiarities of postoperative wounds and the number of roots in extracted teeth (Fig. 3), because the size of the postoperative wound affects the safety of the blood clot in the well of the extracted tooth

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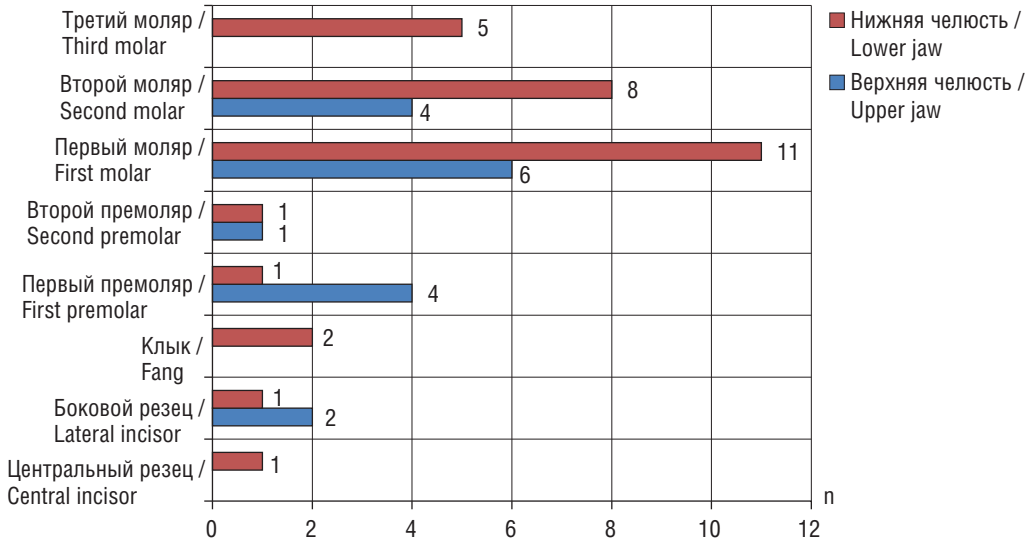

Fig. 1. Characteristics of teeth which extraction leaded to development of alveolitis in adolescents, *n*

Рис. 1. Характеристика зубов, после удаления которых у подростков возник альвеолит, *n*

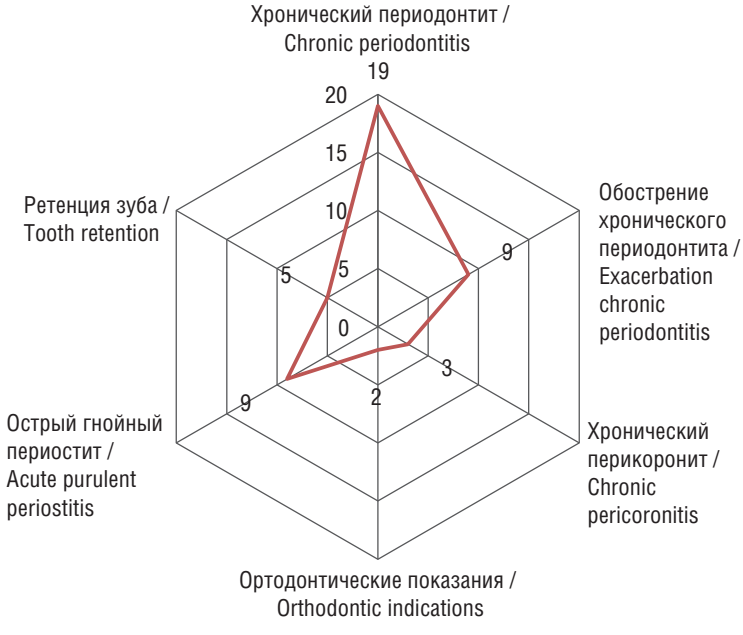

Fig. 2. Dental diseases, which leaded to consulting of adolescents by dentists and development of alveolitis after tooth extraction, n

Рис. 2. Заболевания зубов, в связи с которыми подростки обращались к врачу и после операции удаления которых возник альвеолит, *n*

and the terms of its healing. Analysis of the results of using dental gel with choline salicylate and cetalkonium chloride for treatment of alveolitis in adolescents showed that the disappearance of pain syndrome occurred within the period from 1 to 24 hours and significantly depended on the size of the well ($p \leq 0.05$). After providing medical care for alveolitis of the well after extraction of single-rooted teeth, with the same degree of severity of the course of disease, the pain syndrome was eliminated earlier (on average in 3–5 hours) than after extraction of two- (3–16) and three-rooted (4–24) teeth.

At a mild degree of alveolitis, the pain syndrome in adolescents resolved in 3.81±0.31 hours, filling of alveoli with granulation tissue occurred within 8–12 days. The average terms of their temporary disability (release from study or other pro-

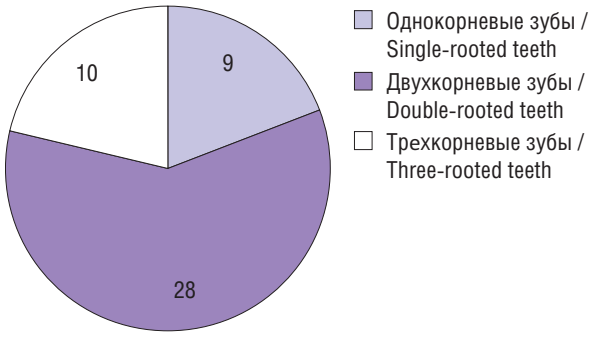

Fig. 3. Characteristics of teeth in light of the number of roots, which extraction leaded to alveolitis in adolescents, *n*

Рис. 3. Характеристика зубов с учетом количества корней, после удаления которых у подростков возник альвеолит, *n*

fessional activity) and number of visits amounted to 1.56±0.42 days and 1.44±0.31 visits, respectively (Figs. 4, 5). In case of moderate and severe alveolitis in adolescents, the pain syndrome disappeared in 8.25±0.42 and 11.82±0.48 hours, respectively, and filling of alveoli with granulation tissue occurred within 9–14 and 11–15 days, respectively. The mean time of temporary disability of adolescents and the number of visits in case of moderate and severe alveolitis were 2.13±0.44 and 2.57±0.63 days, 1.86±0.42 and 2.27±0.43 visits, respectively (Figs. 4, 5). There were no significant differences in the duration of temporary disability and the number of visits required to treat symptoms of alveolitis in adolescents depending on the number of roots of extracted tooth, which leaded to development of alveolitis (p ≥0.08). Although there was a tendency to increase in number of visits and the duration of disability in patient with alveolitis after extraction of two- and three-rooted teeth. To a greater extent, these indicators depended on the severity of the course of alveolitis in adolescents (p ≤0.05).

CONCLUSION

Comparison of the studied parameters of the treatment for alveolitis in adolescents using dental gel with choline salicylate and cetalkonium chloride with similar ones, obtained by other researchers, allowed us to conclude, that dental gel with choline salicylate and cetalkonium chloride is reasonable to use in the clinical practice of pediatric dentistry for treatment of alveolitis. The use of this drug was effective and allowed to eliminate pain syndrome in 2–24 hours after providing medical care and use of gel, as well as to ensure filling of the wells with granulation tissue on the 8–15th day with the average number of visits 1.56–2.57 per adolescent and the average period of their disability due to alveolitis 1.44–2.27 days. We think, that the use of dental gel with choline salicylate and cetalkonium chloride will be appropriate for adult patients with alveolitis and other inflammatory processes of the oral mucosa.

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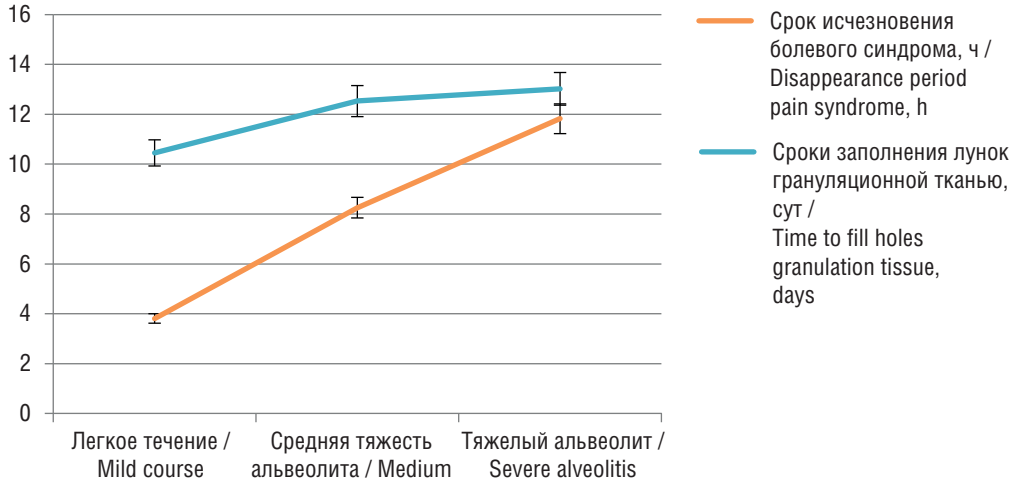

Fig. 4. Time of pain relief (hours) and filling of wells with granulation tissue (days) in adolescents during treatment of alveolitis using dental gel with choline salicylate and cetalkonium chloride ("Holisal", Ulfa A.O., Poland), n

Рис. 4. Сроки купирования болевого синдрома (часов) и заполнения лунок грануляционной тканью (суток) у подростков при лечении альвеолита с использованием геля стоматологического с холином салицилатом и цеталкония хлоридом (лекарственное средство «Холисал», Ульфа А.О., Польша), *n*

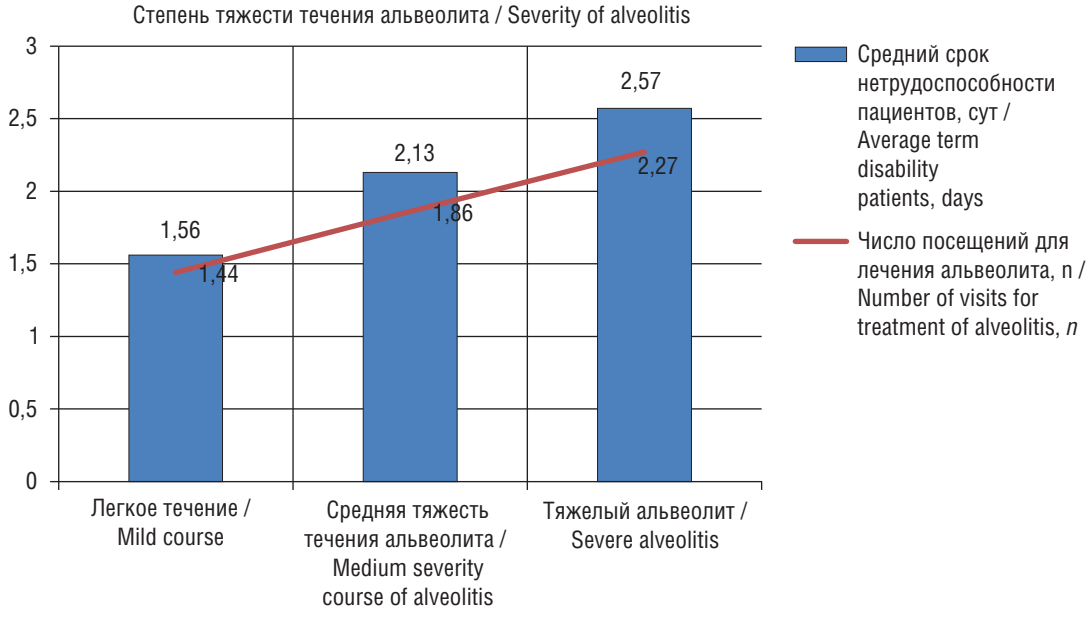

Fig. 5. Average periods of disability of adolescents (days) and number of visits required for relief symptoms of alveolitis (*n*) during treatment with dental gel with choline salicylate and cetalkonium chloride (drug "Holisal", Ulfa A.O., Poland)

Рис. 5. Средние сроки нетрудоспособности подростков (суток) и число посещений, необходимых для купирования симптомов альвеолита (*n*) при лечении с использованием геля стоматологического с холином салицилатом и цеталкония хлоридом (лекарственное средство «Холисал», Ульфа А.О., Польша)

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