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EXAMINING AND TREATING PATIENTS WITH EPILEPSY AT THE DENTIST'S OFFICE (LITERATURE REVIEW)

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ABSTRACT — Our literature review analyzes the sources focusing on epilepsy, as well as on aspects of working with children suffering from epilepsy at a dentist's appointment. Based on the obtained data, the oral cavity status may indicate previously undetected epilepsy, as the dentist may become a doctor of the first contact. And when managing children diagnosed with epilepsy, it is important to select individual treatment tactics for them. The dentist, therefore, should have basic understanding of the patient's condition, the main symptoms of epilepsy, and be capable of applying first aid tactics in case of an epileptic seizure. Otherwise, epilepsy patients tend to have poor dental health and need regular visits to the dentist.

KEYWORDS — literature review, epilepsy, dentistry, pediatric dentistry, neurology.

INTRODUCTION

Child epilepsy has become a common neurological pathology. However, seizures occur instantly, and not neurologists may have to confront this challenge. One of the causes of seizures is stress that may be triggered in a dentist's office during an appointment. Besides, children with this pathology need special care and treatment tactics from other specialists.

The purpose of this review is to study literature focusing on the issue of epilepsy, as well as the aspects of working with children with epilepsy at the dentist's office. We believe that it is important to analyze the relationship between epilepsy and the dental status of children, and visiting a dentist, which in itself can provoke a seizure.

EPILEPSY, ITS POSSIBLE SYMPTOMS AND EFFECT ON THE DENTAL STATUS OF CHILDREN

In 2005, the International League Against Epilepsy defined epilepsy as a brain disorder featuring a persistent predisposition to epileptic seizures, as well as various neurobiological, cognitive, psychological and social effects. Since 2014, setting a diagnosis of epilepsy has required at least two unprovoked seizures with an interval of more than 24 hours, or one unprovoked seizure and the presence of a risk of repeated attacks (at least 60%) after two spontaneous seizures over the next 10 years, or a diagnosis of epileptic syndrome [1].

In 2017, the well-known classification of epilepsies, epileptic syndromes and similar diseases adopted by the International League Against Epilepsy was revised (New Delhi, 1989) [2]. This classification is multi-level and includes three stages — the type of seizure, the type of epilepsy, and the epileptic syndrome.

Epilepsy is a common childhood brain disorder, which affects between 0.5% and 1% of children at the age of under 16. Its psychological comorbidities include autism spectrum disorders, ADHD, psychosocial issues, and family troubles. Physical comorbid conditions occur, as a rule, against the background of medication intake, and they include loss of bone mass, immunological disorders, hypothyroidism, dyslipidemia and carnitine deficiency, etc. [3–8].

Visiting a dentist is, nowadays, most common routine. Children diagnosed with epilepsy are frequent patients in dental clinics, and the estimated prevalence of epilepsy among those seeking dental care is 0.9%. A study by Subki A. H. suggests that 55.2% of respondents have a poor dental status, whereas 84.4% of children need dental intervention [9]. Poor dental health is largely correlated with factors like cerebral palsy, motor disability, and lack of regular brushing. In patients with epilepsy, poor oral hygiene leads to an increased incidence of caries, tooth loss, and periodontitis [10]. Besides, there is a correlation between the frequency of seizures and periodontal diseases [11].

Severe forms of epilepsy are associated with serious problems in the oral cavity and maxillofacial area. In case of West's syndrome, for instance, there are multiple abnormalities, including disturbed eruption time, poorly developed hard tissues of the teeth, abnormal

shape and position, heavy plaque and calcified debris, abnormal bite and poor oral habits — patients breathe through the mouth and bite their nails [12, 13].

Oral cavity injuries occur due to seizures, and patients with epileptic seizures get injured more often than patients with psychogenic seizures. The rate of maxillofacial area injuries among such patients is 19%. At the same time, face soft tissue damage is most common (52%), while dental damage (18%) and maxillofacial fractures (12%) are not so frequent [14]. In case of comorbid epilepsy conditions, the chances of getting injuries in the maxillofacial area are high as well, which may be accounted for by the combined course of the issue with epilepsy [15]. One of the factors suggesting a child has epileptic seizures is a full examination at the dentist's office, since over 90% of injuries during seizures were those affecting the maxillofacial area. At the time of the seizure, almost none of the children received antiepileptic therapy and trauma occurred at the first seizure [16]. According to Lagunju I. A., over a half of children injured during a seizure were diagnosed with generalized idiopathic epilepsy, while this group of patients requires special care when treated [17].

Biting the soft tissues in the oral cavity is also a common injury in case of an epileptic seizure. Earlier tongue traumas were believed to be a direct indication of epilepsy, yet this can also occur in case of fainting and psychosis. Epilepsy can be more often concluded from injuries on the tongue lateral surface, while injuries on the lateral surface of the tongue and lips indicate fainting and psychogenic attacks [18, 19, 20].

In view of the above, children with epilepsy should visit the dentist on a more frequent basis. According to Mielnik-Błaszczak M., most children with epilepsy do not have regular dental check-ups. Besides, patients with epilepsy are less likely to see dentists compared to the general population, even though they have a higher need for it [21, 22].

Epilepsy is an aggravating factor not only for children and their parents, yet for dentists as well. Various dental interventions involve the risk of convulsions, so dentists should have a basic understanding of the patient's condition. As claimed by Schipper M., 10% of patients had a seizure in a dental practice. At the same time, only 79% of them informed their doctor about epilepsy, whereas 6% of them rejected dental procedures due to the major diagnosis [23].

TACTICS FOR MANAGING A PATIENT WITH EPILEPSY IN THE DENTIST OFFICE

First of all, it is to be noted that people with various neuropsychiatric disorders, including epilepsy, require more preventive examinations as well as they need to spend more time on their oral hygiene [24].

When handle a child with epilepsy, it is important, first of all, to get a detailed history of the disease, to find out about the type of epilepsy, the earlier seizures, to learn how often they occurred and under what conditions, as well as get some details regarding adherence to therapy and its effectiveness. Gathering details about the disease should be done at each visit, even if the patient visits the same dentist, to see if the disease is progressing [25, 26]. During the examination, the dental chair should be in the supine position and kept at the lowest possible. Lidocaine used as a local anesthetic virtually does not increase the risk of a seizure [27]. Prior to the procedure, a sedative may be needed. Midazolam, for instance, proves effective in 89% of patients with neurological disorders [28].

General anesthesia should only be used in special situations with severe epilepsy and a large number of seizures in the history. When taking some antiepileptic and anticonvulsant drugs, it is to be taken into account that they can have a serious sedative effect, which means the dosage of anesthesia should be reduced [29, 30].

In case of a generalized tonic-clonic seizure, it is important to free up the space around the patient, lift the head, and give oxygen. If a seizure persists for more than 5 minutes or a in case it is a rapidly recurring seizure, buccal injection of Midazolam has to be used (10 mg — for children over 10; 7.5 mg — for children aged 5 to 10; 5 mg — for children under the age of 5). Besides, it is necessary to call an ambulance, since a long-term seizure can turn into an epileptic status [31, 32].

CONCLUSIONS

One of the factors that may help identify epilepsy in a child is a comprehensive examination at the dentist's office, which may reveal injuries in the maxillofacial area related to previously unknown seizures. Obtaining an accurate medical history can offer an additional chance to predict and prevent epileptic seizures. At the same time, we believe that the issue of dental treatment of children with epilepsy has not been fully disclosed, and the material does not provide enough data.

Therefore, managing children with epilepsy in the dentist's office, it is important to take into account the primary disease and, in view of that, adjust the treatment tactics in regard to potential comorbid conditions.

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