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Dental problems in epileptic patients

In dental practice the doctor encounters patients with various general disorders, and epilepsy is one of them. Epilepsy is defined as a chronic disease of recurrent brain function disturbances in the form of various kinds of seizures which most commonly result in loss of consciousness. The incidence of this disease is approximately 0.5–0.7% of total population. Epileptic seizures of different intensity are the third common general disorder among patients treated in the dentist's office (9).

PATHOLOGICAL CHANGES IN THE MOUTH IN PATIENTS WITH EPILEPSY

Because of the course of disease and applied general treatment, epileptic patients are exposed to the action of numerous factors causing pathological changes in the mouth. These changes refer to the teeth, parodontium as well as buccal and lingual mucous membrane. Since the course of the epileptic attacks is frequently of a sudden and violent character, epileptic patients are particularly vulnerable to various injuries. Head injuries are among particularly dangerous ones. They are often accompanied by traumatic dental lesions.

These lesions are much more commonly observed in epileptic patients (from 11.1% to 46%) than in healthy people (12, 9, 7). Traumatic dental lesions were found in 10% of patients who had at least one epileptic attack during the previous year (15). This type of lesions frequency depends of the number and severity of the epileptic seizures (3). In the majority of patients with the generalized seizures (grand mal type), post-traumatic scars on buccal and lingual mucous membrane are observed (12). Epileptic patients present higher intensity of dental caries (frequency of caries = 100%). The causes of higher intensity of dental caries in epileptic patients include: poor oral hygiene and more rapid formation of both plaque and tartar deposits, lower secretion of saliva resulting from the action of taken medications, limited access to dental treatment resulting from dentists' frequent reluctance to deal with epileptic patients, apprehension of dental procedures, gingival hypertrophy resulting from the effects of used medications, mainly phenytoin (12, 3, 5, 7).

Epileptic patients much more often succumb to parodontal diseases and the reasons for this are quite similar to those observed in the pathogenesis of dental caries. Most frequently reported dental condition in epileptic patients is gingival hypertrophy after phenytoin treatment (12, 2, 1, 13, 9, 5). There are many opinions which account for this phenomenon (13). In general, it can be stated that this hypertrophy is caused by increased amount of collagen (12). Almost all authors investigating this problem emphasise enormous role of bacterial plaque as well as great importance of poor oral hygiene (13). Phenytoin is responsible for gingival hypertrophy in 50–60% of patients (9). Yet, it is hardly ever used in the treatment of epilepsy at present. Currently used medications are mainly carbamazepine and valproinians. Few reports describe gingival hypertrophy resulting also from taking these medications. Though, those patients presented hypertrophy of lower intensity and lesser extent than patients taking phenytoin (1). Apart from gingival hypertrophy and independently of pharmacological treatment, the

following parodontal diseases occur in the course of epilepsy: superficial parodontitis, profound parodontitis. Deepened gingival pockets and gingival bleeding have also been observed in epileptic patients (2, 1). Many reports discuss the state of oral hygiene in patients with epilepsy. In general, it must be stated that oral hygiene is much poorer in epileptic patients and this encourages more intensive plaque and tartar formation and has negative effect on oral health (12, 1, 11, 13, 9). Pharmacological effect of antiepileptic drugs on tooth eruption process and hard tissue structure has also been described. Disturbances in tooth eruption process and anatomical structure of these teeth have been found, i.e. shortening of roots and crowns in comparison with homonymous teeth in healthy people (14).

MANAGEMENT OF THE PATIENTS WITH EPILEPSY IN THE DENTIST'S OFFICE

When dealing with epileptic patients, dental treatment should always be preceded by taking a thorough medical history (4). This is the main condition of successful treatment and prevents many possible local and systemic (general) complications. In addition to routine questions, the interview should contain the following elements: causes and duration of disease, intensity and frequency of seizures, possible occurrence of epileptic aura and its type, patient's after the seizure condition, type of applied therapy, patient's past dental treatment.

In the case of children, it is usual practice to interview additionally their parents or carers. It was found that 82% of investigated people concealed their disease from dentists for fear of being refused dental treatment or because epileptic patients themselves often regard epilepsy as an embarrassing disease (5, 14). If this is the case, the information concerning medications taken by the patient may be a useful indication. Therefore, there is the need to train dentists in how to manage patients with epilepsy. Forty-one per cent of addressed dentists show interest in this problem (8).

An important issue in the management of epileptic patients is adequate, intensified prophylaxis with regard to dental diseases, parodontal diseases as well as disease of the mucous membrane in the mouth. Prophylaxis should be initiated as early as possible in children by informing their parents about the forms of its implementation. Oral hygiene, adequate nutrition, application of preparations containing fluoride and chlorhexidine, as well as frequent dental check-ups are of extreme importance (9, 11). While treating epileptic patients, factors which might trigger seizures should be eliminated.

Stress connected with visiting the dentist may be reduced by making an appointment at a definite time, explaining to the patient dental procedures which are going to be performed before they are started, as well as the use of premedication with suitable preparations. Using the benzodiazepin preparations in dosages adequate to the patient's age and after consultation with the specialist (e.g. diazepam), is usually recommended. Reduction or alleviation of pain while dental procedures are being performed is an important element of treatment. In this case the local anaesthetics are used with no adrenalin additive, and mepivacaine and articaine are highly recommended (14). In particularly severe cases of epileptic patients performing dental procedures under general anaesthesia is advised (6).

While performing dental procedures, it is essential to protect the patient from foreign body aspiration. Thus, it is recommended to use coferdam, endodontic instruments' holders, suctions. Dental treatment should be conducted by an experienced dentist and duration of performed dental procedure should be limited to the minimum. The doctor should establish and keep a good contact with the patient throughout the whole procedure by talking to him gently to reduce the patient's worry and tension. Dental procedures should be performed with the use of the shadowless lamp directed exclusively on the mouth (11). The patient should be placed in a comfortable position, best half-sitting. The head should not be excessively tilted backwards. It is recommended to use trombin and spongostan dressings after surgical procedures in order to accelerate a clot formation or to suture the gum after tooth extraction. The patient should be monitored for 20–30 min. after the procedure. When persistent bleeding is observed the patient may receive 250–500 mg of cyclonamin by intramuscular injection (11).

Prosthetic treatment is especially difficult in epileptic patients. The main principle here is that the construction of prosthetic restoration should be resistant to any damage during an epileptic seizure and prevent possible aspiration to the upper respiratory tract (14). Constructing partial, settling dentures made of acrylic materials is ruled out because of their low stability and brittleness. Constructing one-sided bridges is also not advised in epileptic patients. In the case of partial loss of teeth, a good solution is to apply permanent restoration or skeletal denture. In the case of total teeth loss, dentures with metal plates, additionally reinforced, should be applied. Implants are also recommended because their application enables permanent restoration (9). While planning prosthetic treatment, the patient's parodontal condition should be taken into consideration.

Many factors can induce epileptic seizures. Among them, there are also those which may be connected with dental treatment, e.g. stress, pain, sunlight, certain sounds, smells and the view of stomatological instruments. When an epileptic seizure appears while a dental procedure is being performed, it is of primary importance to stop the procedure at once, all foreign bodies must be removed from the mouth and the patient must be placed in a secure position which will protect him from injuries, especially head injuries. Yet, abrupt change of patient's chair position or applying force are not advisable. The patient's breathing should be made easier by loosening his or her clothes. After the convulsions cease, the patient should be placed in a safe position on his side. The patient mustn't be administered anything inside the mouth. The doctor should remain by the patient's side until the patient regains consciousness. If the seizure does not stop, help should be called immediately or the patient should be transported to the hospital. When a seizure lasts longer than 5 minutes, 10 mg of diazepam should be administered intravenously, but a simpler and faster method is administration of diazepam (e.g. Relsed) by rectal microinfusion. Mode of action and absorption of the medication in this form is similar to its intravenous administration. An epileptic seizure may occur while local anaesthesia is being performed or when tooth impression is being taken. If an instrument is found between the teeth during an epileptic seizure, it mustn't be removed by force but rather held in place until the spastic phase comes on. Each patient who has just had an epilepsy attack should be directed to a specialist or help must be called immediately (11).

In summary, it must be stated that dental treatment of epileptic patients demands great knowledge and skills from the doctor because this condition is very likely to cause serious problems. It must also be emphasised that adequate prophylaxis is of great importance since its implementation may minimize the influence of epilepsy on the incidence of mouth disorders.

REFERENCES

1. Borowicz-Andrzejewska E.: Stan przyzębia dzieci leczonych przewlekłe preparatami przeciwpadaczkowymi. *Pozn. Stomat.*, 133, 1998.
2. Borowicz-Andrzejewska E.: Hiperplazja dziąsła u dzieci leczonych z powodu padaczki a głębokość kieszonek dziąsłowych. *Stomat. Współ.*, 4, 6, 443, 1997.
3. Buck D. et al.: Patience experiences of injury as a result of epilepsy. *Epilepsia*, 38, 4, 439, 1997.
4. Busschots G. V., Milzman B. I.: Dental patience with neurologic and psychiatric concerns. *Dent. Clean. North. Am.*, 43, 3, 471, 1999.
5. Karolyhazy K. et al.: Dental status and oral health of patience with epilepsy, an epidemiologic study. *Epilepsia*, 44, 8, 1103, 2003.
6. Mielnik-Błaszczak M. et al.: Needs for dental treatment in handicapped children. *Annales UMCS, Sect. D*, vol. 58, N2, 88, 1, 2003.
7. Ogunbodede E. O. et al.: Oral health and dental treatment needs in Nigerian patients with epilepsy. *Epilepsia*, 39, 6, 590, 1998.

8. Parry J. A., Khan F. A.: Provision of dental care for medically compromised children in the UK by General Dental Practitioners. *Int. J. Paediatr. Dent.*, 10, 4, 322, 2000.
9. Busschots G. V., Milzman B. J.: Dental patients with neurologic and psychiatric concerns. *Dent. Clin. North. Am.*, 43, 3, 471, 1999.
10. Rajavaara P. et al.: Tooth by tooth survival analysis of dental health in girls with epilepsy. *Eur. J. Paediatr. Dent.*, 4, 2, 72, 2003.
11. Sobaniec H.: Chory na padaczkę w gabinecie stomatologicznym. *Mag. Stomat.*, 4, 44, 1995.
12. Sobaniec H., Sobaniec W.: Stan jamy ustnej u chorych na padaczkę. *Protet. Stomat.*, 46, 5, 289, 1995.
13. Sobaniec H.: Mechanizm pofenytoinowego przerostu dziąseł – przegląd piśmiennictwa. *Mag. Stomat.*, 8, 36, 1995.
14. Sobaniec H.: Leczenie protetyczne chorych na padaczkę. *Protet. Stomat.*, 47, 16, 1997.
15. Ziolo A.: Analiza epidemiologiczna urazowych uszkodzeń zębów u dzieci oraz ocena metod pourazowych rekonstrukcji koron zębów stałych u pacjentów w wieku rozwojowym. Praca doktorska, AM Lublin, 1994.

SUMMARY

On the grounds of literature and own clinical experience, pathological changes in epileptic patients have been described. Dental management procedures in these patients have also been presented. The unquestionable importance of prophylaxis, which may markedly minimize the impact of epilepsy on the incidence of mouth diseases, has been emphasised. It has also been stated that epileptic patients should receive specialised and integrated dental treatment.

Problemy stomatologiczne u chorych na padaczkę

Na podstawie piśmiennictwa i własnych doświadczeń klinicznych opisano zmiany chorobowe u osób cierpiących na padaczkę. Przedstawiono również procedury postępowania stomatologicznego u tych chorych. Podkreślono znaczenie profilaktyki, której stosowanie może w dużej mierze zminimalizować wpływ padaczki na występowanie schorzeń jamy ustnej. Stwierdzono, że chorzy na padaczkę powinni zostać objęci specjalistycznym, zintegrowanym leczeniem stomatologicznym.