

had slid into the sinus during work with Bein's elevator. The patients were hospitalised and after the necessary analyses extirpation of the teeth was performed under general anaesthesia by an approach through the facial wall. After removal of the teeth tamponade of the floor of the sinus was done with Jodoform gauze, which was carried out in the mouth in the frontal part of the cut and removed on the third day after the operation. After removal of the sutures the patients were monitored until objective and subjective problems ceased. The examples are presented in order to warn that complications which are commonly thought of as only occurring in books, can happen to each of us. With this in mind we recommend the careful use of forceps only in cases when it is possible to grasp the tooth through the equator of its crown, and with some reservation instead of Bein's lever we recommend any of the elevators which are normally used in the mandible for extracting the roots of multi-rooted teeth.

### **Anestezija u stomatologiji**

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#### *Sažetak*

Uvod. Većina stomatoloških zahvata radi se u lokalnoj anesteziji (90%). Razlozi za to su jednostavna priprema bolesnika, ambulantno liječenje i rijetke komplikacije. No postoje bolesnici i stanja kod kojih zahvat nije moguće učiniti u lokalnoj anesteziji.

Svrha je ovoga rada utvrditi indikacije i komplikacije opće anestezije u stomatoloških bolesnika.

Materijali i metode. Analizirano je 864 bolesnika u razdoblju od godine 2001. - 2004. u KB "Dubrava" u kojih je učinjen stomatološki zahvat. U preoperativnoj pripremi bolesnicima su potrebni laboratorijski nalazi, EKG, anamneza te pedijatrijski ili internistički pregled. Premedicirani su atropinom i midazolamom intramuskularno, a vrsta anestezije je određena prema vrsti zahvata, dobi i općem bolesnikovu stanju.

Rezultati. Analizirano je 864 bolesnika u razdoblju od godine 2001.-2004. u KB "Dubrava" u kojih je učinjen operativni zahvat. Indikacije za opću ane-

steziju bila su djeca, duševno zaostale osobe i osobe s upalom mekih tkiva usne šupljine. Ekstrakcije zuba rađene su u inhalacijskoj anesteziji na masku (692), a bolesnici s višestrukim popravcima zuba bili su intubirani (172). Tijekom anestezije mjeren je krvni tlak, EKG, periferna saturacija kisikom i koncentracija CO<sub>2</sub>. Bolesnici su postoperativno praćeni 6 sati i nakon toga otpušteni kući ako nisu imali komplikacija.

Komplikacije su bile rijetke: laringo i bronhospazam u 3 bolesnika, aritmije u 5, mučnina i povraćanje u 6, a postoperacijske ekscitacije pojavile su se u 3 bolesnika.

Zaključak. Djeca i duševno zaostale osobe bile su najčešće indikacije za opću anesteziju u stomatologiji. Komplikacije su se pojavile u 17 bolesnika (1,8 %), što je prihvatljiv rizik za tu vrstu zahvata.

### **Anaesthesia in Dental Medicine**

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#### *Summary*

Introduction. The majority of dental procedures are carried out under local anaesthesia (90%). Reasons for this are the simple preparation of the patient, out-patient treatment and rare complications. However, there are patients and conditions for which such procedures are impossible to perform under local anaesthesia.

Aim. The aim of this study was to determine the indications and complications of general anaesthesia in dental patients.

Materials and methods. We analysed 864 patients during a period from 2001 to 2004 in the University Hospital Dubrava, in whom dental operations were performed. In preoperative preparation patients require laboratory findings, ECG, case history and paediatric or internist examination. They are premedicated with atropine and midazola intramuscularly, and the type of anaesthesia determined according to the type of operation, age and general condition of the patient.

Results. During the period from 2001 to 2004 864 patients were analysed in the University Hos-

pital Dubrava, in whom an operation was performed. Indications for general anaesthesia were children, mentally retarded persons and those with inflamed soft tissues of the oral cavity. Teeth extractions were performed under inhalation anaesthesia on a mask (692), and patients with multiple dental repairs were intubated (172). During anaesthesia blood pressure, ECG, peripheral saturation with oxygen and CO<sub>2</sub> concentration was measured. The patients were monitored for 6 hours after the operation, after which they were released from hospital if there were no complications.

Complications were rare: laryngo and bronchospasm in 3 patients, arrhythmia in 5, nausea and vomiting in 6, and postoperational excitation occurred in 3 patients.

Conclusion. Children and mentally retarded persons were the most frequent indications for general anaesthesia in dental medicine. Complications occurred in 17 patients (1.8%) which is an acceptable risk for this type of operation.

### Usporedna raščlamba mogućih komplikacija tijekom oralnokirurških zahvata u općoj endotrahealnoj i kratkotrajnoj inhalacijskoj anesteziji

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#### Sažetak

Svrha je rada bila istražiti brojnost mogućih komplikacija prigodom oralnokirurških zahvata u dvjema skupinama redom pristiglih pacijenata. Pacijenti prve skupine bili su tretirani u općoj kratkotrajnoj inhalacijskoj anesteziji, tj. inhalacijskoj sedaciji, a na pacijentima druge skupine oralnokirurški zahvati rađeni su u općoj inhalacijskoj anesteziji uz intubaciju. Rezultati praćenja parametara općega fiziološkog statusa i lokalnih komplikacija pri radu bilježeni su u unaprijed pripremljen upitnik. U skupini pacijenata u inhalacijskoj sedaciji utvrdili smo veću čestotu povišenoga tlaka, ubranoga bila, niske oksigenacije, lomljenja zuba prigodom vađenja, pojačanoga krvarenja za vrijeme i nakon zahvata, poteškoća s disanjem zbog krvi i sekreta u dišnome traktu, postojanje

stranoga tijela u dišnome traktu, nagnječenja mekih tkiva usne šupljine. Povraćanje nakon zahvata bilo je češće u skupini pacijenata u općoj inhalacijskoj anesteziji uz intubaciju, što je posljedica dužega trajanja i veće dubine anestezije. Rezultati istraživanja u usporedbi s iskustvima i istraživanjima dostupnima u literaturi upućuju na oprezniji pristup inhalacijskoj sedaciji i potrebu za daljnjim detaljnijim istraživanjima toga područja.

Istraživanje je pokazalo da se tijekom kratkotrajne inhalacijske anestezije mogu očekivati opće i lokalne komplikacije koje mogu ugroziti pacijentovo zdravlje.

Svaka ozbiljnija komplikacija tijekom rada uz uporabu kratkotrajne inhalacijske anestezije traži prekid rada i plan za intubaciju pacijenta kako bi se zahvat mogao dovršiti, npr. prijelom korijena koji se ne može odstraniti. Takvih primjera u ispitanome uzorku nije bilo, ali iskustveni podatci o tome u Kliničkome zavodu za oralnu kirurgiju postoje.

### Comparative Analysis of Possible Complications During Oralsurgical Operations Under General Endotracheal and Short Inhalation Anaesthesia

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#### Summary

The object of the study was to investigate the numerous possible complications during oralsurgical procedures in two groups of patients. The patients in the first group were treated under general brief inhalation anaesthesia, i.e. inhalation sedation, while the patients in the second group were treated under general inhalation anaesthesia with intubation. The results of monitoring the parameters of general physiological status and local complications during work were recorded in a previously prepared questionnaire. We determined greater frequency of raised blood pressure, rapid pulse, low oxygenation, fractured teeth during extraction, increased bleeding during and after the procedure, breathing difficulties due to blood and secretion in the respiratory tract,