

Interrelations Between Anesthetic Substances, General Condition of the Patient and Implant Rehabilitation Procedure

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The purpose of this study is to quantify the existing interrelationship between the anesthetic substances used in the implanto-prosthetic rehabilitation procedures with the general state of the patient, as well as the specific implant rehabilitation work. The analyzed lot brought together 110 patients, candidates for implanto-prosthetic rehabilitation, subjected to a general and local evaluation protocol for choosing general anesthesia in accordance with the general state and complexity of the implanto-prosthetic algorithm. Regarding connection between therapeutic approaches in oral implantation and types of anesthesia, we obtained correlative aspects between the use of inhalosedation and implantation algorithm in 80% clinical cases and augmentation with implantation was found in 20%. General anesthesia with Midazolam has been correlated with implantation and augmentation in 77% clinical cases and sinus lift and implantation was found in 23% clinical cases. General anesthesia with Midazolam was used in 64% clinical cases with implantation and sinus lift and 36% clinical cases with implantation. Careful monitoring of the patient and proper dental surgery where the intervention is performed are the key for a therapeutic success regarding sedation and anesthesia.

Keywords: assisted procedures, conscious sedation, general anesthesia

Surgical dental needs have always faced the problem of pain management during surgery and post-operative period. Pain, despite the beneficial role of the signal against the threat of lesion, remained, through excessive intensity, a dreadful enemy with which man had to fight [1,2]. In the practice of oral implantology and in the field of reconstructive techniques, inhalosedation has occupied an important place for a long time, having the advantage of a simple and minimal maneuver for both the patient and the physician, which made it a usual maneuver [3,4].

The purpose of this study is to quantify the existing interrelationship between the anesthetic substances used in the implanto-prosthetic rehabilitation procedures with the general state of the patient, as well as the specific implant rehabilitation work [5,6].

Experimental part

The analyzed lot brought together 110 patients, candidates for implanto-prosthetic rehabilitation, subjected to a general and local evaluation protocol for choosing general anesthesia in accordance with the general state and complexity of the implanto-prosthetic algorithm (fig.1).

The general training methods used were represented by: inhalosedation, the general anesthetic intravenous method based on the administration of Midazolam (benzodiazepine), a clinical situation in which the effect of the anesthetic substance is potentiated by (Algoalmin) and at the end of the intervention Dexamethasone is administered as an antiinflammatory corticosteroid, as well as the general anesthetic method based on the administration of 2 mg of Midazolam (loading dose) dissolved in 10 mL of physiological saline - slow administration, approximately 2 min. The Midazolam maneuver was performed 5-10 min before the start of the intervention (fig.2).

The originality aspects of the study focus on the close link between general medicine and dental medicine to monitorize the candidate patient for the implant involving general body preparation, general anesthesia, monitoring

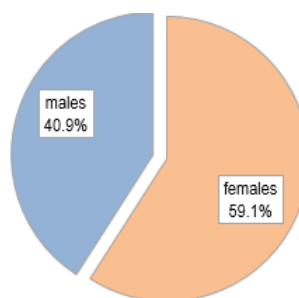


Fig.1 Sample's structure on genders

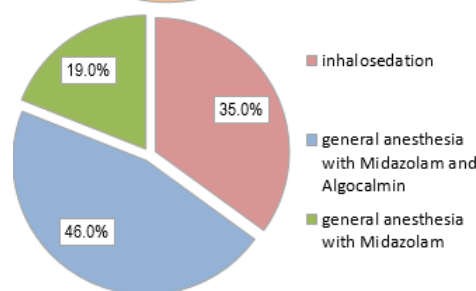


Fig.2 Methods of general preparation

and management of these complex integrative therapeutics.

The main goal is to avoid any risk during the implantation work, prefigured for their execution in various situations of general condition damage on the simulator.

In general anesthesia, pre-anesthetic consultation is a pre-eminent place, mandatory before any surgery. It is recommended that any patient undergoing bloody dental surgery, regardless of the chosen anesthetic method, should be given a minimum anamnesis.

Results and discussions

Conscious sedation is a state of minimal consciousness depression that includes the ability of the patient to keep the airways open and to satisfactorily respond to physical stimuli or verbal commands. By inhalation method, gaseous inhalants are absorbed into the lungs and the circulatory system. Inhalation may replace local anesthesia for certain dental treatments due to the analgesic qualities of N₂O. Anxiety is the major indication for the use of inhalation

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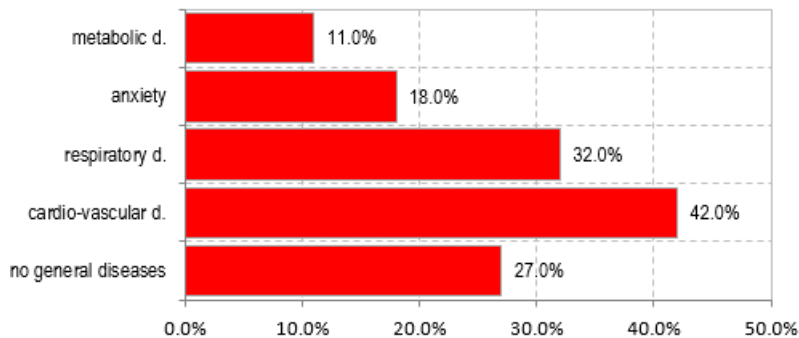


Fig. 3 General health status

in dental practice, with fear and stress being known before and during dental treatment. Although inhalation with the protoxide is the almost *ideal* method of sedation, it is necessary to recall that some patients are not comfortable with this technique, and others do not reach the necessary depth for sedation to be effective for dental treatment. In recent years, the use of nitrous oxide has become increasingly important for the treatment of dental conditions in patients with various systemic illnesses. The use of inhaled N_2O in patients with cardiovascular disease reduces the risk of dental treatment. One of the most important factors in exacerbating or even triggering cardiovascular disease is oxygen deficiency in the myocardium.

In this regard we correlated the general health status with anesthesia type and with specificity of oral reconstruction. From the analyzed group we obtained a prevalence of cardio-vascular diseases :42%, followed by respiratory diseases 32%, , by anxiety 18% and by metabolic diseases 11% (fig.3).

General anesthesia is a drug-induced reversible coma. For this purpose intravenous and inhaled drugs are used, the desires of general anesthesia being: hypnosis, analgesia, muscle relaxation and neuro vegetative protection. Drugs used in dentistry anesthesia are not different compared to general surgery, which may differ in how intubation is being done. In dentistry, nasal-tracheal intubation is preferred, an intubation that makes it easier for the dentist to approach the wound.

In patients at risk as well as in those with poly-allergy, certain prophylactic measures are required, of which the most important are: antihistamine premedication (H1 blockers: Clemastin (Tavegil R) 2-4 mg (1-2 ampoules), Dimetionolone maleate (Fenistil R) 4 - 8 mg (1-2 phole) and H_2 blockers: Cimetidine 200-400 mg (1-2 vials) slow I.V. or microperfusion (50 mL 0.9% NaCl), premedication with glucocorticoids given per os: Metylpredisolone (Ex. 40 mg) 24 h, 12 hours, 2 h before administration of the potential allergen or glucocorticosteroids administered intravenously: Prednisolone or Metylprednisolone 250 mg thirty minutes prior to the start of the medical procedure. In addition, it is necessary a stabilization of the cardiovascular system, volemic procedure and electrolytic normalization, avoidance of nephrotoxic potential, non-steroidal anti-rheumatic, aminoglycosides, amphotericin B, cisplatin, cyclosporine-metformin [7,8].

Also sedation with Midazolam (7.5 - 15 mg per bone, 2.5 - 5 mg intravenously taking into account the possibility of unwanted respiratory depression) or diazepam (10 mg per bone) is required as a prophylactic measure. In patients with Feocromocytosis in order to avoid a hypertensive crisis, beta blockers such as metoprolol, nebivolol are recommended. The treatment of anaphylaxis after Irwin and Rippe (2000, p.853-858) comprises the following measures of a general nature: administering adrenaline 1/1000 0.2-0.5mL subcutaneously or intramuscularly to three

doses at 1-5 min intervals, installation of a proximal injection or puncture shaft, adrenaline 1/10000 0.1 - 0.3 mL at the injection site, orotracheal intubation, cricotomy, tracheostomy, oxygene therapy, mechanical ventilation, diphenylhydramine administration 1.25mg / kgc, max 500 Mg intravenously or intramuscularly, hydrocortisone 200 mg or methylprednisolone 50 mg intravenously at 6 hours for 24 to 48 h, cimetidine 300 mg intravenously over 3-5 minutes.

To avoid bronchospasm, 100% oxygen should be given as soon as possible, Miofilin if the patient is not in shock, 5mg / kg, max 500mg in 20 minutes intravenously, then 0.3-0.8mg / kg / h intravenous, Metaproterenol 5% 0.3 mL in 2.5 mL NaCl 0.9% or 0.5% 0.5% 0.5% Albuterol in 2.5 ml NaCl 0.9% by aerosol, Izproterenol, if not responding, as follows: 0.035 μ g / kg iv , Then slowly increase to 0.225 μ g / kg / min.

In the pre-anesthetic consultation, the patient should be investigated for vital functions: blood pressure, heart rate, oxygen saturation, respiratory rate, temperature. Please refer to the personal history of pathology, the chronic treatment to follow (if the patient is being treated with oral anticoagulants: clopidogrel, injectable: clexane, fraxiparine or antianginal platelet: aspirin - these should be discontinued 4-5 days before intervention). Conscious sedation is a state of minimal consciousness depression that includes the ability of the patient to keep the airways open and to respond satisfactorily to physical stimuli or verbal commands. By inhalation method, gaseous inhalants are absorbed into the lungs and the circulatory system. The main agent currently used is actually a mixture of N_2O and O_2 administered with a modern device that largely eliminates the risks of N_2O overdose. This method is the safest, with the most advantages. The inhalation technique contributes significantly to completing the arsenal of existing methods for treating particularly anxious patients, thus reducing the unavoidable present stress from the waiting room. The inhalation technique has important advantages compared to other pharmaco-sedation techniques, being close to the *ideal* of a sedation method [9,10]. The indications of this technique are becoming wider, including various fields of medicine and dentistry: the induction period for inhalation is two to three minutes, the depth of inhalation is controllable and can be changed from one moment to the next, allowing the physician to have effective control over the clinical effects of gas in both directions; the duration of inhalation is flexible in the sense of being able to adapt it to the time the dental treatment needs; the return after inhalation is the most complete; N_2O is not metabolized in the body, which makes it fast to eliminate within three to five minutes of other sedation methods, which last between two to three hours.

This is an advantage especially for ambulatory patients, who will be able to leave the dental office shortly after the end of the treatment, thus being able to restart their daily activities relatively quickly [11,12]. However, in some

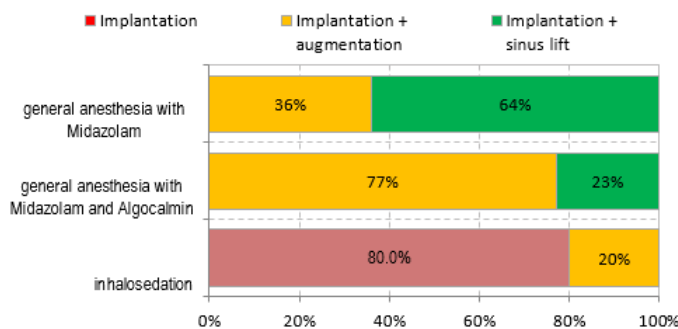


Fig.4 Correlative aspects therapeutic approaches in oral implantation and types of anesthesia

cases, it is recommended that patients be accompanied, not drive or operate hazardous appliances. It does not require injections or infusions, the side effects being limited at the systemic level and in particular on the liver, kidneys, brain or cardiovascular and respiratory systems. Inhalation may replace local anesthesia for certain dental treatments due to the analgesic qualities of N_2O . Anxiety is the major indication for the use of inhalation in dental practice, with fear and stress being known before and during dental treatment. Although inhalation with the protoxide is the almost "ideal" method of sedation, it is necessary to recall that some patients are not comfortable with this technique, and others do not reach the depth necessary for sedation to be effective for dental treatment. In recent years, the use of nitrous oxide has become increasingly important for the treatment of dental conditions in patients with various systemic illnesses. The use of inhaled N_2O in patients with cardiovascular diseases reduces the risk of dental treatment. One of the most important factors in exacerbating or even triggering cardiovascular disease is oxygen deficiency in the myocardium.

Nitrous oxide is considered a safe analgesic gas for the treatment of patients with cardiac arrhythmias. Under the influence of nitrous oxide, the secretion of steroids and catecholamines (stress-inducing hormones) is greatly reduced. Also, cardiovascular parameters indicate a more relaxed state of relaxation through inhalation rather than general anesthesia [13].

Patients with HTA or a history of hypertension, even well-balanced by chronic antihypertensive medication, are at an increased risk for dental treatments.

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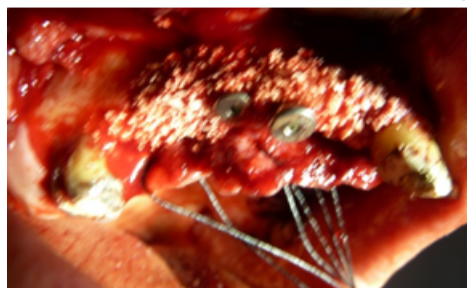
General anesthesia with Midazolam has been correlated with implantation and augmentation in 77% clinical cases and sinus lift and implantation was found in 23% clinical cases. General anesthesia with Midazolam was used in 64% clinical cases with implantation and sinus lift and 36% clinical cases with implantation (fig. 4, 5).

In cases where the pain induced by them is not completely eliminated, the existing cardiac balance may be troubled by endogenous catecholamine secretions. The use of nitrous oxide in these cases is indicated to produce a fall in blood pressure and, in particular, to the prophylaxis of a sudden and undesirable increase in blood pressure.

Administration of nitrous oxide was indicated in cases of asthma because N_2O is not irritant to the broncho-alveolar tree, on the contrary, stress is what exacerbates asthma crises. Patients with seizures / epilepsy have an increased sensitivity to hypoxia, resulting in an increase in



Fig 5 Clinical and radiological aspect of oral reconstruction using implants and general anesthesia



convulsions. Nitrous oxide, which is not epileptogenic, can be administered safely, all the more so as stress and anxiety are recognized as major causes, direct in the onset of seizures.

Inhalation of this mixture, without premedication, causes, after a short period of (one to two minutes) of motor agitation and euphoria similar to post-alcoholic, a superficial narcotic sleep, with general analgesia, without muscle relaxation and with the keeping of reflexes.

Surgical anesthesia can only be achieved by increasing the pressure of the gaseous mixture or by administering undiluted nitrous oxide, both of which are not advisable, since they present a risk of cerebral anoxia with irreversible lesions even after short-term exposures.

The dentist will have to perform haemostasis in the shortest possible time so that tension and heart rate are not affected. As well known, a haemorrhage causes hypovolemia to lower blood pressure and compensate for it by increasing heart rate. Increasing ventricular aura in a patient with pathologic heart may result in cardiac arrest by increasing oxygen consumption, so monitoring vital functions is essential in any surgery, whether dental or not. In general anesthesia, pre-anesthetic consultation is a pre-eminent place, obligatory prior to any surgery. It is recommended that any patient undergoing a bloody dental surgery, regardless of the chosen anesthetic method, should have a minimal anamnesis.

Conclusions

During preanesthetic consultation, the patient should be investigated for vital functions: blood pressure, heart rate, oxygen saturation, respiratory rate, temperature. Pathological personal history, chronic treatment followed (if the patient is being treated with oral anticoagulants: clopidogrel, injectable: clexane, fraxiparine or platelet antiangiants: aspirin will be discontinued two to three days before surgery.

The inhalation technique should take into account countless aspects: physiological, anatomical, personal pathological history of the patient. N_2O titration should be done on a case-by-case basis, depending on age, associated pathology, gender, weight.

Careful monitoring of the patient and proper dental surgery where the intervention is performed are the key for a therapeutic success regarding sedation and anesthesia.

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