INTRODUCTION

Evaluation of anesthetics techniques and practices is an intense and current concern; worldwide there are bodies that are linked at institutional level in an international association (World Federation of Societies of Anaesthesiologists) which is a federation counts no less than 126 members and aims at identifying good common anesthetics practices.

In recent decades, the progress in medical fields including in ORL but also in anesthesia require much closer collaboration between ENT surgeon and anesthesiologist. This collaboration is a mutual relationship between the two specialists and lies in the fact that the two specialists often face the same problems linked with the surgical act. If in other medical specialties, the collaboration between the surgeon and anesthesiologist is rather a collaborative relationship, peer specialists acting on two different fronts with specific methods and tools, instead this collaboration is a specific one in the ENT surgery where the two specialists share the same approaching path and sometimes the same tools; their work is very often overlapped and they are forced to make decisions jointly. Optimizing patient health and choosing the best case management is the solution for decreasing morbidity and mortality rates, and also the costs. The anesthesiologist must elaborate a management plan for particular situations by consulting specialists involved or not in making surgery, especially for ENT tumors.

Keywords: scientific evidence, clinical decision, ENT cancer, case management.

PREOPERATIVE ANAESTHETIC MANAGEMENT FOR PATIENTS WITH ENT TUMORS

Preoperative evaluation

In general, ENT surgical practice involves a not very thorough preoperative preparation and patients are often hospitalized in the morning they operated, but for cases with comorbidities or ENT tumors usually more thorough preoperative preparation and for these cases the intervention is more complex and lasts longer. Surgical practice for ENT tumor requires a thorough preoperative preparation and is addressing some patients with chronic diseases coexisting with tumor or without a direct connection with surgical disease. The anesthetic-surgical risk significantly increases for ENT tumor with comorbidities. The anesthesiologist’s responsibility is to recognize coexisting risk factors and to correct (if possible, before surgery) dysfunction caused by these comorbidities.

Surgical anesthetic risk must be recorded in the medical records and presented to patient and an informed consent...
must be signed by the patient. Within the pre-anaesthetic consultation, information about the drugs used, the emergence of allergies, previous anaesthesia history will be additionally obtained from the patient. Clinical examination, laboratory routine and special investigations will be carried out depending on each particular case.

Literature review on the anaesthetic-surgical practice in ENT patients with cardiovascular and pulmonary comorbidities reveals the following considerations:

**Cardiovascular diseases**

Anesthetic-surgical risk is increased with the gravity of heart suffering. It also increases the risk of postoperative complications. In Europe especially, the risk assessment in cardiac patients undergoing noncardiac surgery is done by using the GOLDMAN scale which includes data provided by history, clinical examination, ECG and noncardiac risk factors such as age, type and location of the surgery, the existence of metabolic imbalances. Patients who fall into classes 3-4 (over 13 points) should not be undergoing elective surgery until after a preparatory phase aiming to improve heart function; preferably, the advice of a cardiologist is needed. On the American continent, the Canadian risk scale (normal/increased/high risk) is most popular and comprises left ventricular impaired function, age, emergency surgery, re-intervention, other severe and poorly controlled systemic diseases, unstable angina, recent myocardial infarction, obesity and heart failure. Risk assessment must be made based on the nature of heart disease.

- Patient with ischemic heart disease and a myocardial infarction has as main risk the possibility of new infarction usually in the first 5 days after surgery (with a peak postoperative on the third day). The risk is even greater as more recent myocardial infarction is.

- Patient with ischemic heart disease (but no IMA) has an increased risk of death from myocardial infarction, perioperative arrhythmias or pulmonary edema. It is recommended to perform ECG myocardial scintigraphy with dipyridamole or Thallium for preoperative assessing the ischemic heart condition.

- Patients with heart valve disorders have an increased risk of decompensation (heart failure) before surgery; in this regard the most dangerous is aortic stenosis (perioperative mortality is 14 times higher).

- Patients with artificial heart valves have increased risk of bleeding (consecutive to anticoagulation therapy), embolization or bacterial endocarditis.

- Patients with uncontrolled hypertension have increased risk for peri-anesthetic blood pressure oscillations. If heart disease is diagnosed in the pre-anesthetic examination, a postponing of scheduled surgery is required to stabilize heart function and control blood pressure.

If the patient is known to suffer heart failure undergoing chronic treatment, the appropriate treatment is continued as follows:

- Beta-blockers treatment will be continued until the morning of surgery and resumed as soon as possible after surgery;

- The treatment with clonidine or similars which cause rebound after sudden discontinuation of treatment will be preoperative decreased progressively few days and substituted with other antihypertensive;

- It is recommended a discontinuation of digitalis the day before surgery to prevent poisoning with digitalis (hypoxemia or hypokalaemia);

- Diuretics may be used until the day of surgery, possibly during surgery through parenteral way;

- Coronary dilators drugs most commonly used perioperatively are applied on skin in the chest region slowly absorbed and gives vasodilation several hours; anti-K vitamins should be discontinued 48-72 hours before surgery and replaced perioperatively with unfractionated heparin or low molecular weight heparins. Other therapeutic measures may be needed in preoperative phase: prevention of bacterial endocarditis in patients with prosthetic valves; insertion of a temporary pacemaker; -intra-aortic balloon placement for patients with recent myocardial infarction and evolving/unstable angina.

There is little evidence on the superiority of a particular anesthetic agent in patients with cardiovascular disease as long as anesthesia is performed correctly: to have a proper depth (to prevent discharge of catecholamine when endotracheal intubation, skin incision or traction on viscera is done) and avoid tachycardia, blood hypotension or hypertension (must be maintained within +/- 20% compared to the preoperative value).

The patient must come to the operating room properly sedated (mostly with benzodiazepines) for cropping anxiety leading to releasing the catecholamine.

**Preoperative psychological preparation and premedication**

The goals of premedication are:

- Ensuring anxiolysis, sedation, amnesia;
- Ensuring hemodynamic stability;
- Ensuring antiemetic drugs;
- Decreasing postoperative pain;
- Decreasing gastric secretions and thus decreasing the risk of aspiration;
- Preventing allergic reactions;
- Decreasing need for anesthetics;
- Decreasing postoperative shiver.

*Best anxiolytic method is preanesthetic consultation!* There is no standard formula convenient for every patient; it is adapted by patient, by type of intervention, by predictability of surgery timing.

*Benzodiazepines* are used as premedication for their anxiolytic effect and for anterograde amnesia. But must be taken into account the variability and the time interval between administration and surgery time. Oral or intramuscular administration is preferred.

Midazolam, oral, adult 0.06mg/kg, child 0.5mg/kg; Lorazepam, oral, 1-2.5mg; Diazepam, oral, 2-10mg, im 5-10mg.
Alpha receptor agonists may be used in premedication for sedation and decrease the need for intra and postoperative analgesic substances. Clonidine, 4mcg oral/kg
Melatonin is an alternative in premedication for its sedative, anxiolytic, anti-inflammatory, antioxidant
Pre-emptive analgesia prevents central nervous sensibilisation. It involves the administration of analgesic type; NSAIDs (Paracetamol, Diclofenac), Gabapentin, Pregabalin before applying noxious stimulus; and decreases perioperative analgesic requirements.
Reduction of postoperative nausea and vomiting is achieved by a multimodal management associating more prophylactic and therapeutic methods, drugs and adjuvants. Administration time depends on the length and duration of each intervention. The classes of drugs most used are: phenothiazines (Chlorpromazine), butyrophenones (Droperidol in small doses 0,625-1.25 mg), benzamides (metoclopramide), antihistamines (hydroxyzine), 5HT3 antagonists (Ondansetron, Dolasetron, Granisetron, Tropisetron, Palonosetron), corticosteroids (Dexamethasone).
Decreased gastric secretion, increased gastric pH and decreased the risk for aspiration pneumonia is achieved through the use of antacids (sodium citrate), H2 receptor antagonists (cimetidine, ranitidine, famotidine, nizatidine), proton pump inhibitors (omeprazole), prokinetic (metoclopramide).

Respiratory disorders
Preoperative evaluation of the patient with pulmonary diseases requires to establish the exact nature and extent of functional deficit, and to assess the surgery effects on lung function which may cause respiratory failure in patients with chronic lung disease.

Besides anamnesis and complete physical exam focused (in patients with ENT tumours) on detection of airway obstruction signs, a series of laboratory investigations are required; they are very important to the anesthesiologist for anesthesia and perioperative monitoring such as: pulmonary function tests (ventilatory routine tests and special tests), evaluation of blood gases, EKG, chest radiography.

Chronic Obstructive Pulmonary Diseases (COPD)
It is recommended to continue chronic treatment (if necessary oxygen, bronchodilators, antibiotics (in case of exacerbation of infection), expectorant, corticosteroids preferably inhaler). Avoid smoking at least 6 weeks before elective surgery.
Premedication will contain a parasimpaticolitic such as glycopyrrolate, scopolamine, atropine) to reduce bronchial secretions and saliva.

As anesthetic technique, whenever possible a regional anesthesia is preferred to avoid adverse respiratory effects of general anesthesia. In patients with ENT tumours undergoing general anaesthesia, it is aimed to prevent bronchospasm by inhibiting reflexes in the upper airways.

Upper Respiratory Tract Infection (URTI)
URTI represents a contraindication for elective surgery (hyper secretion, redness and irritation of the respiratory tract, with a tendency to laryngospasm (increased airway reactivity to maneuvers anesthetics) and intraoperative bleeding). If indicated, antibiotic therapy should precede the time of surgery.

Bronchial asthma (BA)
As many of commonly used anesthetics (Sevoflurane, Propofol, Ketamine) have bronchodilator effects, patients with BA pretty good tolerate general anesthesia. Preoperative preparation aims to improve pulmonary function performance, to continue known treatment if the disease is controlled, or adjust it if necessary (step-up therapy) with delaying the surgical intervention when possible to control asthma attacks.

The algorithm presented in "Evidence-based anesthesia practice" divides patients with asthma in four severity steps which are intended to address different steps in preanesthetic approach for patient underwent surgery [2] (see Figure 1).

Recognition and prediction of difficult airways
Diagnosing conditions or situations that lead to difficulty in controlling and maintaining airway permeable is part of the preanesthetic evaluation performed by the anesthesiologist; to obtain an accurate diagnosis, it must be used techniques with high validity in terms of specificity and sensitivity, negative and positive predictive value, ROC curve etc.

There is no universally accepted definition of what difficulty in controlling airway means. In a study [3] conducted in 1200 patients, the used classes (C-L system) could not predict with great validity situations with difficulty in maintaining the airway permeable (many patients classified as class III or IV were easy intubated).

Since no consensus has been reached on the definition of "difficult airway" and none of the many classification systems did not achieve the value of good validated diagnostic (indicators such as sensitivity and specificity above 90%), a standard definition and a cut-off for validity is necessary for enabling a judicious use of the classification method, in order to identify situations where the airway control requires more attention on behalf of the anesthesiologist and the intervention team, but also a perfect safety for the patient undergoing surgery. In the absence of these two parameters, any attempt to compare studies using different methods for identifying these situations or situations predicting factors that require free airways would be ineffective.

For example, the findings of literature review mention different validity levels for Mallampati classification system, modified by Samsoon and Young [4]: Sensitivity between 60-80%; Specificity between 53-80%; PPV de 20%. A recent meta-analysis [5] on Mallampati system suggests it has a very weak predictive value. Other studies obtained sensitivity up to 70%, but overall validity not very satisfied [6-8]. Thyromental distance (6,5cm) was also proposed as a predictor of difficult airway situations [9].

New trends in assessing airway to carefully selected patients with known / suspected airway pathology: 1) preoperative endoscopic evaluation may radically modify
airway management and decrease the frequency of using vig- il intubation in local anesthesia; 2) ultrasonography to assess airway and confirmation for tracheal intubation. It allows visualizing anatomical structures (crico-thyroid), achieving regional blocks, confirmation/invalidation of pneumothorax; 3) video-laryngoscopy versus conventional laryngoscopy has a higher success rate for difficult airway. Among the advan-tages of video-laryngoscopy, a better image of the larynx even in patients with reduced mobility cervical spine under a lower hemodynamic pressor response to laryngoscopy/ intubation. In most studies, the success rate at the first at- tempt of tracheal intubation using Glidescope video-laryngoscope (Veraton Inc., USA) or Storz C-Mac video-laryngoscope (Karl Storz, Germany) was over 94%. Outside of these classification systems, radio-imagistic pro-cedures for detection of airflow waterproof, and radiology (Rx), ultrasound (ultrasound), CT (computed tomography) were proposed. Although studies have shown a higher validi-ty of these imaging procedures (particularly for Upper Lip Bite Test and Ultrasound), the overall conclusion is that these procedures demonstrate a poor predictive value in predicting situations that require special control of the airways, and may not be used as unique screening test for the detection of these situations.

Natural evolution was the use multiple predictors that are influencing each other’s and that can increase the validity of the identification system for special situations where airway control is imperative. Literature review results on predictors of difficult intubation is the examination cannot predict with high validity situations where airway control is absolutely necessary and must be permeable, but airway examination and the patient’s history and physical examination may increase validity.

CONCLUSIONS
As evidence suggests, the anesthesiologist must elabo-rate a management plan for particular situations by consult-ing specialists involved or not in making surgery, especially for ENT tumors. A plan should include details on the steps for achieving ex-pected results and a maximum clinical effectiveness. The four steps suggested in the records identified are: 1) evaluation of the likelihood and clinical impact of core man-agerial issues; 2) actively pursuing of opportunities to pro-vide supplemental oxygen during the process of managing difficult airway situation; 3) reconsider the basic feasibility of basic management opportunities (intubation versus awake intubation after general anesthesia, intubation versus initial invasive techniques noninvasive techniques, preservation versus ablation of spontaneous intubation; 4) development of a plan for and of alternative strategies.

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