

7-1938

## Pre-Operative and Post-Operative Medication

A. H. Maloney

Follow this and additional works at: <https://dh.howard.edu/dentoscope>



Part of the [Dentistry Commons](#)

---

### Recommended Citation

Maloney, A. H. (1938) "Pre-Operative and Post-Operative Medication," *The Dentoscope*: Vol. 18: Iss. 1, Article 3.

Available at: <https://dh.howard.edu/dentoscope/vol18/iss1/3>

This Article is brought to you for free and open access by Digital Howard @ Howard University. It has been accepted for inclusion in The Dentoscope by an authorized editor of Digital Howard @ Howard University. For more information, please contact [digitalservices@howard.edu](mailto:digitalservices@howard.edu).

## PRE-OPERATIVE AND POST-OPERATIVE MEDICATION\*

A. H. Maloney, Ph.D., M. D., LL.D.

Department of Pharmacology, Howard University School of Medicine

THE traditional differentiation of surgical operations into major and minor categories is happily going into the discard. This differentiation was based upon sight of operation, duration and extent of operative procedure and incidentally, danger to subsequent impairment of function or life. Of these three the last mentioned is certainly the most important single factor. Sight of operation and nature of procedure are both subject to particular determination. Not so with the problem of possible outcome. Patients have died following the extraction of a tooth or the incision of an abscess while others have survived following the removal of a cerebral tumor or a suturing of the muscle of the heart.

A better classification is to distinguish two types of surgical operations—"those of emergency and those of election"—and in each group good risks and poor risks with varying intermediate degrees. This classification is more satisfactory because it transfers the emphasis from the surgeon to the patient where properly it belongs.

Emergency operations represent a class in which their performance constitutes an urgency determined by intense pain or an impending jeopardy to life.

Elective operations are those that allow for deliberation. These cover a wide range of possibilities from the non-serious to those which might ultimately terminate fatally through an error in determinative judgment. In either group, the risks may be classed as good or poor depending upon such factors as stigmata of previous disease or diseases, natural physical endowment, degree of debilitation, hydration or dehydration, anemia produced by the present functional or organic pathological state, concurrent conditions, such as upper respiratory infections and sepsis (localized or systemic), age, sex, obesity, psychosis, and the effect of these on the specific pathology of the patient.

It is a pleasure to state that with this sort of perspective, the task before us is rendered easy for the recourse to special pleading in order to accommodate the discussion to oral surgery is effectively eliminated.

---

\* Paper read before the National Dental Association, August 10, 1937.

*Pre-Operative Medication*

1. Psychological Approach: It is our firm conviction, assuming that an operation is to be done, that consideration of the psychic state of the patient constitutes the first active desideratum for both surgeon and anesthetist. It is unfortunate that this factor is so often neglected in our professional approach to prospective operative cases.

The majority of patients come to operation burdened by emotional misgivings, apprehensions and the defeatism of fear. Cases are on record where patients have been reported to have died from sheer fright pre-operatively. Psychic shock, though itself sublethal may combine with hemorrhage or other conditions to attain threshold dimensions.

One of the most important items in preoperative management is the care of the patient's psychic state. This is done (1) by words of explanation, encouragement and reassurance, which by all means should include the promise that medicine will be given the night and also the morning before operations to ensure a good night's rest as well as relief from undue apprehensiveness just before he goes to the operatory; (2) preliminary medication to take care of his psychopathological state would in most instances be met by the administration of nembutal or another of the hypnotic barbiturates, sedormid (allyl-isopropyl acetyl urea), or scopolamine with morphine.

2. Because of its therapeutic significance pre-operative alimentation comes properly within the scope of pre-operative medication. Solid food on the night before or the morning of the operation is not to be given because it provokes nausea and vomiting with the possibility of tracheal aspiration during induction. This is too well known to call for anything more than passing mention. Fluids by mouth up to the midnight of the night before, fluids as by hypodermoclysis or veniclysis and even during operative procedure are not only not contraindicated but are of definite value in many cases of debilitated and dehydrated patients. If to the fluid (usually saline) is added 5% dextrose solution many an adynamic bad-risk patient may be carried safely through the ordeal. Unless there is specific contraindication a high carbohydrate, low fat intake is to be our guide pre-operatively where the question of alimentation is a pertinent factor.

3. Drugs: In addition to fortifying the patient against exposure to psychic shock, pre-anesthetic medication serves the useful function of producing a partial or basal anesthetic state, raising the

threshold of the body's reflexes, and aborting anoxemia during the operation. All three effects are desiderata of the first magnitude in importance.

Four classes of drugs come within the category of pre-operative medicaments:

- (1) Psychic stabilizers: This class has already received attention.
- (2) Secretory depressants: of atropine and scopolamine.
- (3) Basal anesthetics:
  - (a) Narcotic group: Morphine, Codeine, Pantopon, dilaudid.
  - (b) Hypnotic group: Barbiturates, per os or per rectum of tribromethanol.
- (4) Constitutional stabilizers.

Two opposite types of drugs belong in this last group. These are differentiated on the basis of the type of patient under consideration.

(a) There is the hypersthenic type of patient characterized by the exhibition of an exaggerated reflex mechanism; for example, the strong, the athletic, the alcoholic, the drug addict, the hyper-thyroid, and the individual of high-tension nervous constitution.

(b) Then there is the hyposthenic type characterized by a sub-normal reflex mechanism; for example, the small child, the senile and the person debilitated by acute or chronic disease, hemorrhage, fever or traumatic shock.

On the basis of this pathologic classification pre-anesthetic constitutional stabilizers may quite conveniently be grouped as (1) cardio-respiratory stimulants—such as digitalis, caffeine, adrenalin and ephedrine, coramine, metrazol and alphalobeline and (2) cardio-respiratory depressants. The basal anesthetic group may be used for patients of this type by grading the dosage to suit the condition. To prevent excessive secretion in the respiratory tubes, atropine is given when ether is used alone or in combination with other anesthetics. Because of its cortical depressant action in addition to its secretory depressant effects scopolamine is preferred to atropine by some anesthetists. The short-acting barbiturates, atropine-morphine, and for the just mentioned reason, scopolamine-morphine may be used preliminary to ether-oxygen, ether-oxygen-gas, or gas-oxygen mixtures. Morphine, pantopon and dilaudid (either alone or in combination) should not be employed routinely or without individualized discrimination. To infants and children under five these

opiates should never be given pre-anesthetically; to the aged, to the debilitated and to cardiacs they should be given only when positively indicated and in minimal effective doses. Possibilities of individual idiosyncrasy or allergy should always be considered.

The foregoing considerations bear primary reference to elective surgery. In the field of dental surgery, however, a considerable proportion of operations belong properly within the emergency group with pain, not death, as determinative. In such cases time and the exigencies of the situation preclude recourse to a schema of pre-operative medication. In these instances sedormid or amidopyrine may be employed for mild sedation and analgesia.

### *Post-Operative Medication*

The objectives sought in post-operative medication are (1) procurement of maximum comfort, (2) prevention of complications, and (3) hastening of recovery. Pain and restlessness are relievable by morphine, codeine, pantopon or amidopyrine. Nausea and vomiting, fever, dehydration, low systolic blood pressure suggest the use of fluids (with dextrose for debility) by hypodermoclysis or intravenously. In the case of considerable loss of chlorides by vomiting, dilute HCl may be indicated. Persistent abnormal temperature, post-operatively, should call for repeated blood studies and blood cultures for the detection of suspected septicemia or infective thrombosis. In the event of the latter a secondary operation may be indicated to remove the infected clot. The treatment of septicemia falls without the scope of this paper. (Where there is capillary oozing acacia may be added to the saline.) For impairment of respiration and cardiac distress, caffeine, coramine, or metrazol may be indicated. For cold, heaters and blankets are serviceable. Elimination is fostered by enemata and appropriate laxatives. Speaking specifically of oral or adnexal operations some oozing is to be expected after the effects of the local anesthetic have passed off. In the event of extreme restlessness associated with facial pallor or ashy complexion with rapid pulse as distinguished from the characteristic ruddy complexion of uncomplicated post-operative excitement, morphine is good; for it frequently is observed to act beneficially in checking ideopathic hemorrhage. However, it is to be borne in mind that morphine may serve merely to mask the picture and lull one into a sense of false security. The source of the bleeding should be carefully sought. If this is accessible a 5% solution of cocaine applied to the spot followed by a sponge saturated in adrenalin might be used as a packing. Should this fail, a hemostat grasping the bleed-

ing point should be applied for a reasonable time to crush the vessel and thereby promote clotting, or else a small ligature should be tied around the bleeding vessel. The use of chromic acid crystals or other such active cauterizing agents may be useful unless the bleeding is severe.

Hemophiliacs call for special consideration. Persistent oozing or active bleeding in these unfortunate individuals constitutes a crucial problem. Various hemostatic sera have been recommended. None are 100% reliable. An extract of human placental tissue is available for true hemophiliacs. Its use is explained on the theory that placental tissue contains certain substances designed to protect the newborn from hemorrhage. Theelin or estrone is also recommended if calcium and thromboplastine have failed. Where hemorrhage is severe transfusion following the above preventive measure may be necessary.

One of the more remote and uncommon sequelae to oral surgery is lung abscess. A cough occurring two or three weeks post-operatively accompanied by fever, leucocytosis and a cadaveric odor to purulent sputum should make one suspicious of this condition. A positive x-ray would be diagnostically confirmatory. The treatment for lung abscess falls outside the scope of this paper.

### *Metabolic Diseases*

There remains for our consideration the pre- and post-operative management of cases complicated by debilitating diseases. The ones we shall consider are: hyperthyroidism, hypertension and diabetes mellitus.

1. *Hyperthyroidism*: No sort of operation should be done on this type of case without a judiciously directed course of pre-operative treatment. The treatment as to nature and extent is determined by a critical evaluation of the patient's condition as a surgical risk. Pertinent factors in this evaluation are (1) duration of the disease, (2) age of the patient, (3) loss of weight, (4) history as to previous iodine medication, (5) pulse rate, (6) history of hyperthyroid episodes, (7) cardiac involvements and complications.

The management includes (1) rest, (2) high caloric diet, (3) high fluid intake, (4) administration of iodine. In case of thyroid crisis, impending or actual, ice-bags to the chest, abdomen and lower extremities, or the oxygen tent to lower the temperature and consequently the metabolism (Crile) and sedatives to control restlessness, are to be utilized. In cardiac involvement, preceding or

resulting from thyrotoxicosis sedatives as adjuvants to rest are the only general drugs necessary. Treatment of arrhythmias or fibrillation and flutter calls for digitalis or quinidine. In congestive heart failure repeated small transfusions should be given. Hyperthyroid patients that have been properly prepared for operation exhibit no abnormal post-operative complications. However, cases exhibiting cardiac involvements are unduly prone to post-operative pulmonary infection and pulmonary congestion, and less frequently, pulmonary embolism. Precautionary measures, such as changing the patient's position in bed at frequent intervals and the judicious administration of nutrient fluids or blood transfusions should be considered.

2. *Hypertension*: Patients with essential hypertension are inordinately prone to cerebral vascular accidents preceding or following operation unless the precaution is taken to prevent a dangerous rise of blood pressure because of initial fear before operation or pain and struggling during induction.

Hypertensive cases are always actual or potential cardiacs and/or nephritics. It is good policy, therefore, to exercise the pre- and post-operative precautions recommended for cardiac cases in hypertensive patients.

It is not our province here to present you with a classification of the nephritides the better to differentiate the management of the various types. This would take us too far afield. Acute nephritis should be treated with the view to improvement before operation is performed. Chronic nephritic cases, exhibiting nitrogen retention should be rigorously restricted so far as the intake of protein is concerned to 30 or 40 grams per diem, should have the intake of fluids increased so that the daily output of urine will reach 1500 cc. and the sodium chloride intake should be from 7 to 8 grams daily. Anemia, if present, should receive treatment with iron. If iron and liver fail to improve the anemia the renal damage is serious, and transfusion is definitely indicated.

Post-operative treatment should stress adequate daily urine output (1500 cc. or more). These patients require even more fluids parenterally than purely cardiacs. If acidosis is present as revealed by a decrease in the CO<sub>2</sub> combining power of the blood, sodium bicarbonate by mouth or intravenously (2-5 grams daily) should be given.

*Diabetes Mellitus*: Diabetes without infection, acidosis or debility does not increase the operative risk. But the presence of these complicating factors calls for careful management. Because in severe acidosis infection aggravates the acidosis surgical intervention to re-

move the source of the infection should supercede medical treatment of the acidosis. Operate first and treat after is a good maxim to follow. Where there is no complicating infection operation should be postponed until the general condition has been improved by treatment. Insulin-dextrose are the measures to be employed. For post-operative medication to our diabetic patients the diabetes is treated in the regular manner with no difference in procedure from the non-diabetic patients.

These, and similar systemic diseases which render oral surgery a risky undertaking at best, represent excellent instances of interprofessional cooperation between the dentist and physician. For self protection as well as the best interest of the patient such cooperation is greatly to be desired.

### Summary

1. Oral surgery is part and parcel of general surgery so far as the patient is concerned and, as such, calls for no particular differentiation as a unique problem.
2. Pre-operative medication is considered with emphasis upon:
  - (a) General Problem: Psychic stabilization, diet and medications.
  - (b) Specific Problem: Drugs used are categorized as: Psychic, secretory, basal anesthetic, cf. narcotics and hypnotics, and constitutional stabilizers for hypersthenic and hyposthenic types.
3. The desiderata of post-operative medication include:
  - (a) Maximum comfort; (b) complication; (c) recovery; appropriate prophylactic and remedial measures are suggested.
4. Special consideration is given to the treatment of hemophiliacs.
5. Pre- and post-operative management of cases complicated by debilitating disorders are considered with special reference to cases exhibiting hyperthyroid and hypertensive states and diabetes mellitus.
6. In these as in other poor-risk cases ideal situations are presented for professional cooperation between the dental surgeon and the internist.

My sincere thanks are due to Dr. Russell A. Dixon, Dean of the College of Dentistry, and Dr. Emmett J. Scott of his program committee for the honor and privilege of presenting this paper before the National Dental Association, and to Dr. John A. Turner for its appearance in *The Dentoscope*.