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20 Years of Practicing Anesthesia In a Small Hospital

SUMMARY

Anesthesia has developed from being a procedure each doctor performed on his own patients when necessary, to a specialty, sometimes practiced part time by family physicians. Training varies considerably. There have been dramatic changes in the pharmacology. Since there will likely always be a need for part time anesthetists, family physicians who will fill this need must be well prepared for the task. The benefits are a greater understanding of applied pharmacology, and a heightened sense of selection for surgery. (Can Fam Physician 1984;30:2339-2341).

SOMMAIRE

L'anesthésie s'est développée à partir d'une procédure pratiquée par chacun des médecins sur ses propres patients lorsque nécessaire et est devenue une spécialité que certains médecins de famille pratiquent à temps partiel. La formation varie considérablement. La pharmacologie de l'anesthésie a connu des changements dramatiques. Puisqu'il existera probablement toujours un besoin pour des anesthésistes à temps partiel, les médecins de famille qui combleront ce besoin devront être bien préparés. Les bénéfices en sont une meilleure compréhension de la pharmacologie appliquée et une amélioration du sens de la sélection des patients pour la chirurgie.

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WHEN I GRADUATED in 1960, in many areas of rural Nova Scotia it was expected that each physician would give the anesthetics required for his or her own patients. Most of our training at that time was an apprenticeship acquired in the hospital in which the physician worked.

I gave my first well-remembered anesthetic before completing medical school. It was probably similar to the first anesthetic ever given in Nova Scotia, in 1847, by Dr. Lawrence VanBuskirk,¹ for an amputation. Dr. VanBuskirk, a dentist, used open ether; however, chloroform is reported

to have been used in Halifax on February 5, 1848.¹ Its use would undoubtedly have spread rapidly from city to rural areas.

My first anesthetic was given under my father's supervision in the home of an elderly lady who had fallen, dislocated her shoulder, and who appeared to be in some pain. While I gave the open chloroform ("Place the drops on the mask so they will vaporize and not fall on the patient's face. Five drops at a time in a pattern"), my father reduced the dislocation. He had given anesthetics in the home many times since his graduation in 1932. Sometimes he used a lay anesthetist, but often he operated and gave the anesthetic himself. This way, the patients did not have the expense of two doctors, hospitalization, and the use of an operating room. My father's most frequent use of anesthesia was during home births. He routinely carried chloroform and ether in a special 'little

black bag' used only for confinements. (See Figure 1.)

Thus begun, my anesthesia training continued during my internship when I had a two month obstetrical rotation in a small hospital. There, when I was not busy in obstetrics, I was allowed to spend the mornings with a general practitioner anesthetist, giving anesthetics. From him I learned to use chloroform and ether in the manner of the day. I learned that the anesthetic was considered only a minor part of the surgery; the anesthetist was therefore also expected to assist the surgeon by doing the suctioning during a tonsillectomy. This was perhaps just as well, since the anesthetic was maintained by vaporized ether being blown into the patient's trachea through a gag in the corner of the mouth. Too vigorous suctioning could remove the anesthetic gas and lighten the patient; too little left blood which could cause tracheal obstruction.

During these two months I learned to follow the stages of anesthesia as outlined by Guedel² which had to be carefully observed, because there was no monitoring equipment. The eye signs were extremely useful in ether anesthesia.

After completing my internship and returning home to practice, I began giving anesthetics under my father's supervision. I soon became dissatisfied with the extent of my knowledge and began to take short courses. Perhaps the most helpful was the one day a week that I spent in the teaching hospital with the chief of anesthesia, who kindly allowed me to be there on a completely informal basis. As my competence grew and as my confreres noted my interest in anesthesia, other physicians began referring to me, obviously relieved to stop their own anesthetic practice.

Changes in Drugs And Techniques

The drugs used in anesthesia and the methods of administering them have changed dramatically in 20 years. The only drugs used then that I still use are oxygen, pentothal, nitrous oxide, narcotics and atropine.

When I began practice, the accepted pediatric anesthetic was chloroform and ether, chloroform for the induction and ether for maintenance. The induction with open chloroform took approximately ten minutes, and during this time, the patient would quite frequently vomit. Our experienced OR nurse would almost be pleased at this occurrence, because it would usually signal a much smoother course for the anesthetic. The patient would be ready for surgery in about 15-20 minutes. Following the open induction, the anesthesia was maintained by ether vapor blown through a mouth gag for tonsillectomy, or semi-open circuit technique for other operations.

Adult anesthesia was usually begun with pentothal and then continued with either ether or cyclopropane given in a circuit rebreathing technique.

By the mid 60s, drugs which had less danger of causing hepato- and nephro-toxicity were introduced, rendering chloroform and ether obsolete. With the advent of halothane, cyclopropane was also discontinued, chiefly because of its potential for explosion. We were not as concerned about its

cardiovascular effects as we perhaps should have been.

Penthrane (methoxyflurane) was used briefly in our hospital. Fortunately, its renal toxicity was not a problem for us; perhaps because of the short duration of most of our anesthetics.

Need for the FP Anesthetist

When I graduated in 1960 there was only one certified anesthetist in this area of Nova Scotia. He was not available to us. However, our hospital has always had two, and at times as many as five, family physician anesthetists on staff. A regional hospital has been recently established in the shire town, where only full time anesthetists are permitted to give anesthetics.

Our hospital does not have enough surgical cases to attract a fulltime anesthetist. We find it convenient to arrange call among the three physi-

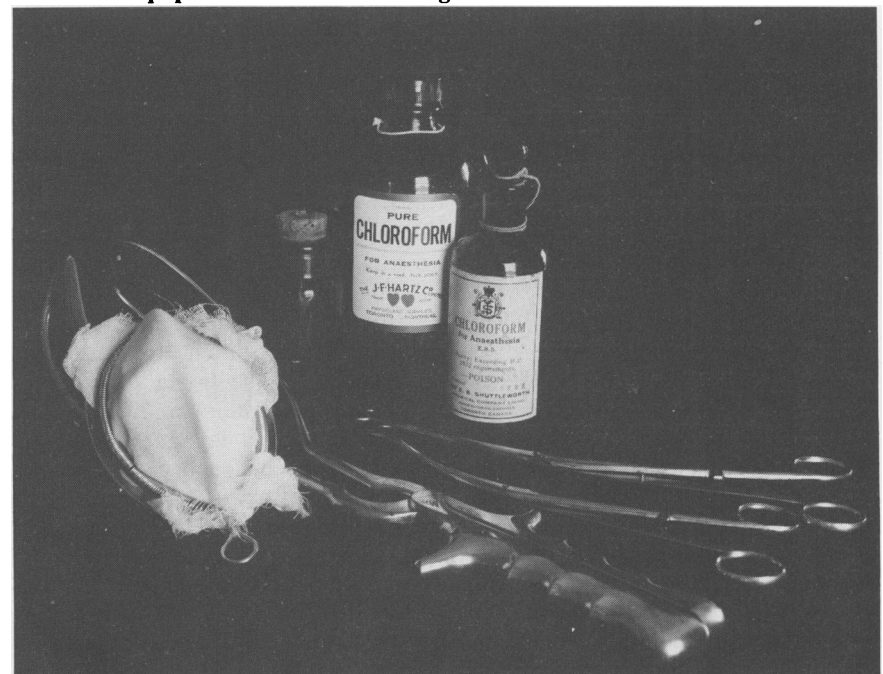
cians presently giving anesthetics, so that at least one is available to the hospital at all times. One fulltime anesthetist could not give the same emergency coverage, so our hospital and presumably others of comparable size, will continue to require part time anesthetists. Despite the new regional hospital and the varying numbers of people available to give anesthetics, my total caseload and types of cases has remained surprisingly stable. Table 1 shows the cases in which I have administered anesthesia, from January 1963 to December 1982. My patients have ranged in age from a few weeks to age 101. The latter patient required a colostomy for obstructive carcinoma—and lived for another two years.

During this time I witnessed four deaths within 24 hours following anesthesia: the patients' ages ranged from 57 to 90 and two were severely injured

TABLE 1
One Family Physician's Anesthesia Practice Over 20 Years

	Jan 63-Dec 67 1,125 Cases	Jan 68-Dec 72 2,940 Cases	Jan 73-Dec 77 1,970 Cases	Jan 78-Dec 82 2,010 Cases	Totals 8,045
Female	640	1,764	1,379	1,216	4,999
Male	485	1,176	591	794	3,046
Elective	861	2,507	1,711	1,807	6,886
Emergency	264	433	259	203	1,159
Major	349	1,061	782	607	2,799
Minor	776	1,879	1,188	1,403	5,246
Hysterectomies	24	121	120	109	374
Cholecystectomies	25	90	44	50	209

Anesthesia equipment for the doctor's bag of the 1930s.



Ovral*

Each white tablet contains 0.25 mg d-norgestrel (as 0.5 mg of the dl-racemate) and 0.05 mg ethinyl estradiol.

CONTRAINDICATIONS: Patients with thrombophlebitis, thromboembolic disorders, or a history of these conditions, cerebrovascular disorders, myocardial infarction, active liver disease or a history of cholestatic jaundice. Patients with known or suspected carcinoma of the breast, estrogen-dependent neoplasia, or undiagnosed abnormal vaginal bleeding. During the period a mother is breast feeding an infant or where pregnancy is suspected or diagnosed. Patients with diplopia or any ocular lesion arising from ophthalmic vascular disease, such as partial or complete loss of vision or defect in visual fields and patients with classical migraine.

WARNINGS: Discontinue medication at the earliest manifestations of: thromboembolic disorders such as: thrombophlebitis, pulmonary embolism, cerebrovascular disorders, myocardial ischemia, mesenteric thrombosis, and retinal thrombosis; visual defects, partial or complete, proptosis, diplopia, papilledema, ophthalmic vascular lesions or severe headache of unknown etiology. Rule out pregnancy as soon as it is suspected. Conditions such as epilepsy, asthma, and cardiac or renal dysfunction require careful observation. In women with predisposing factors for coronary artery disease (such as cigarette smoking, hypertension, hypercholesterolemia, obesity, diabetes, history of preclampsic toxemia, and increasing age) oral contraceptives have been reported as an additional risk factor. After the age of 40 years, for purposes of fertility control, oral contraceptives should be considered only in exceptional circumstances and when the risk/benefit ratio has been carefully weighed by both the patient and the physician.

PRECAUTIONS: Before oral contraceptives are used, a thorough physical examination should be made including a blood pressure determination, a Papanicolaou smear taken and breasts, liver, and pelvic organs should be examined. The first follow-up examination should be done within 6 months after oral contraceptives are prescribed. Thereafter, examinations should be made at least once a year. Patients who have had jaundice should be given oral contraceptives with great care and under close observation. If there is a clear-cut history of cholestatic jaundice, especially if it occurred during pregnancy, other methods of contraception should be prescribed. Patients with essential hypertension may be given the drug but only under close supervision. Diabetic patients, or those with a family history of diabetes, should be observed closely. Although oral contraceptive use has not been shown to increase the risk of developing breast cancer, particular attention should be paid to women who have an immediate family history of this disease and are therefore more prone to its development. Persistent irregular vaginal bleeding requires special diagnostic judgement to exclude the possibility of pregnancy or neoplasm. Patients with fibroids (leiomyomata) should be carefully observed. In general, women in the later reproductive years gradually assume an increasing risk of circulatory and metabolic complications which become more prominent at 35 to 40 years of age. In view of this, closer observation, shorter duration of oral contraceptive use, and avoidance of cigarette smoking is advisable. Patients with a history of emotional disturbances, especially the depressive type, are more prone to have a recurrence of depression while taking oral contraceptives. Concomitant treatment with barbiturates, rifampicin, phenylbutazone, or phenytoin has been reported to reduce the efficacy of oral contraceptives and increase the incidence of breakthrough bleeding.

ADVERSE EFFECTS: The following are some of the adverse reactions which have been observed with varying incidence in patients receiving oral contraceptives: nausea, vomiting, gastrointestinal symptoms, breakthrough bleeding, spotting, change in menstrual flow, amenorrhea, edema, thrombophlebitis, neuro-ocular lesions and pulmonary embolism.

Full product information for Ovral* available on request to physicians and pharmacists.

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before surgery. Postoperatively, 18 patients died during this period.

Benefits to The Part time Anesthetist

A part time practice of anesthesia benefits the family physician in daily practice in a variety of ways. The emergency resuscitation in a cardiac arrest or an apneic newborn is less stressful if you have been doing daily routine intubations in the operating room.

A great deal of anesthesia is applied pharmacology: each patient may have a different response to the same drug. The appearance of expected effects, and the occurrence of unwanted side effects have to be carefully monitored. One must know even the rare side-effects to be able to control their occurrence. This titration of drugs to get a desired effect and minimize complications over the short time of an anesthetic is an excellent preparation for the use of various drugs in office practice. The control of hypertension and other illnesses with drugs becomes easier to do and to understand.

My own training in anesthesia was not necessarily typical: the types of training varied considerably. In 1977, the Department of Health in Nova Scotia formed a committee to provide guidelines for anesthetic services in Nova Scotia.³ They recommended two years of formal training for part time anesthetists and the continuance of the existing four year period of training for fulltime anesthetists.

Conclusion

Our patients want instant relief from their illnesses, and we want to give it to them. If we realize the limitations of surgery by seeing it daily, we tend to become more selective in referring cases for operation.

Perhaps the most rewarding feature of an anesthetic practice for a family physician is the realization that he or she is contributing to the hospital and community in a unique and meaningful way. ●

References

1. Parker WF. Daniel McNeill Parker MD. His ancestry and a memoir of his life. Toronto, William Briggs, 1910.
2. Guedel AE: International Anesthesia Research Society, Bulletin No. 3, May 1920.
3. Guidelines of Anaesthesia Services. Clinical Advisory Committee on Anaesthesia, Dept. of Health, NS, 1977.

CHILDREN'S PANADOL*

acetaminophen

The children's acetaminophen analgesic/antipyretic with an important difference—it's sugar free.

ACTIONS:

Acetaminophen is an analgesic and antipyretic.

INDICATIONS:

Panadol* Acetaminophen is indicated for the relief of pain and fever in various conditions including the symptomatic treatment of colds.

CONTRAINDICATIONS:

Hypersensitivity to acetaminophen.

ADVERSE EFFECTS:

In contrast to salicylates, gastrointestinal irritation rarely occurs with acetaminophen. If a rare hypersensitivity reaction occurs, discontinue the drug. Hypersensitivity is manifested by rash or urticaria. Regular use of acetaminophen has shown to produce a slight increase in prothrombin time in patients receiving oral anticoagulants, but the clinical significance of this effect is not clear.

PRECAUTIONS AND TREATMENT OF OVERDOSE:

The majority of patients who have ingested an overdose large enough to cause hepatic toxicity have early symptoms. However, since there are exceptions, in cases of suspected acetaminophen overdose, begin specific antidotal therapy as soon as possible. Maintain supportive treatment throughout management of overdose as indicated by the results of acetaminophen plasma levels, liver function tests and other clinical laboratory tests.

N-acetylcysteine as an antidote for acetaminophen overdose is recommended and is available in oral and parenteral dosage forms. More detailed information on the treatment of acetaminophen overdose with N-acetylcysteine in its oral and parenteral dosage forms is available from the manufacturers (Mucormyst, Bristol-Myers Canada Limited trademark for its brand of oral N-acetylcysteine; Parvolex, Glaxo Canada Ltd. trademark for its brand of parenteral N-acetylcysteine), or contact your nearest Poison Control/Information Centre.

DOSAGE:

Children:

Based on Weight

10-15 mg/kg every 4 to 6 hours, not to exceed 65 mg/kg in 24 hours.

Based on Age

Age	Single Dose
Newborn to under 4 months	40 mg
4 months to under 12 months	80 mg
12 months to under 2 years	120 mg
2 and 3 years	160 mg
4 and 5 years	240 mg
6, 7 and 8 years	320 mg
9 and 10 years	400 mg
11 and 12 years	480 mg
13 years and older	640 mg

Dosage may be repeated 4 to 5 times, not to exceed 5 doses in 24 hours.

SUPPLIED:

Panadol* Drops: Each 0.8 mL contains 80 mg acetaminophen in a deep red liquid vehicle with a slightly bitter fruit flavoured taste. Available in amber bottles containing 15 mL † and 25 mL ‡ and a calibrated dropper.

Panadol* Elixir: Each 5 mL contains 120 mg acetaminophen in a fruit flavoured red vehicle. Available in amber bottles containing 100 mL †.

Panadol* Pleasant tasting Chewable Tablets 80 mg: Each round, pink tablet scored one side and engraved Panadol* the other side, contains 80 mg acetaminophen. Available in amber bottles of 24 † tablets.

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