



International Dateline

. . . . from Sydney

The history of anesthesia in Australia commenced in 1847, when Dr. John Belisario, a dentist, administered the first recorded anesthetic in Australia.

With time, anesthetics became safer and more widely accepted. As better equipment became available, a number of dentists specialized, and indeed, advertised "painless dentistry."

The teaching of gas anesthetics at dental schools had a vogue but then diminished, to a point where the dental schools actively discouraged dentists from learning and practicing general anesthesia or sedation.

A few of the "gas practices" survived but the trend moved towards inviting medical anesthetists to visit the dental offices or for dentists to treat their patients in hospital. Both of these concepts had shortcomings. Many of the dental offices were ill equipped to supply safe anesthesia and there was often the problem of finding suitable and available anesthetists.

The hospitals had no problem with anesthetic equipment and anesthetists, but did not supply reasonable dental equipment and as a result, this service was used mainly for oral surgery procedures. Until the end of the 1960's most dental practices carried out dental procedures under unsupported local anesthetic. The concerned dentist sometimes sedated his patients with oral barbiturates or "Oblivon."

The revival of anxiety and pain control occurred in the late 1960's, when a number of dentists returned from England, where under the auspices of the Society for the Advancement of Anesthesia in Dentistry they had been introduced to the intermittent I.V., methohexitone technique.

The Establishment was severely critical of this technique and indeed successfully persuaded most of these dentists to discontinue using the I.V. route. There were a few dentists who did not succumb to these threats and indeed not only continued to practice but were instrumental in forming the Australian Society for the Advancement of Anesthetics and Sedation in Dentistry, in 1970. Most prominent amongst the pioneers were Drs. Noel Hodge and Alan Polyblank, of Sydney.

A.S.A.A.S.D. had as its aim, the promotion and teaching of anxiety and pain control techniques for dentistry. It also hoped to stimulate the dental faculties to undertake the role of teaching these techniques. This was to prove to be a difficult task.

In 1971, however, A.S.A.A.S.D. conducted its first

I.V. diazepam course and in 1974, a specially selected group of 5 dentists were introduced to the techniques of "Light level methohexitone."

Gradually, and not without some hearty exchanges, the opposition to I.V. sedation techniques has been broken down. Indeed, not long after A.S.A.A.S.D. started I.V. courses, the Sydney Dental School commenced a series of postgraduate courses in I.V. diazepam sedation.

Several other dental schools announced plans for anesthetic/sedation programs for dentists. They varied from limited sedation teaching, up to two year courses in general anesthesia. To date not one of these planned courses has taken place, and indeed, Sydney Dental School has discontinued I.V. courses, because they felt there was no demand. It is interesting to note that since these courses have been discontinued, A.S.A.A.S.D., has conducted 31 I.V. courses with 533 participants!

The next milestone was the first Relative Analgesia course in Australia, conducted by A.S.A.A.S.D., under the personal guidance of Dr. Harry Langa in 1972. Since that time A.S.A.A.S.D. has conducted 47 R.A. courses with 1,032 dentists participating. A number of R.A. courses have been conducted by commercial firms with the aid of experts from A.S.A.A.S.D. The University of Adelaide in South Australia, in 1974, introduced the first of its postgraduate R.A. courses.

Since that time South Australian undergraduates have had practical experience in R.A.

The impact of R.A. has been stunning. Around 50% of Australia's 5000 dentists are using R.A. in their dental practices.

A review of the present situation of the various broad groups of anesthetic and sedation techniques follows:

1. *General Anesthetics*: There is no teaching for dentists in Australia. The topic is briefly covered in lectures and students may have the opportunity to work on intubated patients.

In general dental practices, a number of offices have the necessary equipment for use by specialist anesthetists, who administer general anesthetics to ambulatory patients. A number of hospitals offer theatres for use by dentists. Almost without exception, there is no equipment supplied for operative dentistry. To the general dentist there are so many problems involved in carrying out restorative work

under general anesthetic in hospitals, that there is, in fact, little utilization of this type of treatment. One assumes that if a number of strategically placed hospitals would offer the facilities, and make access to them easier, dentists would do more treatment in hospitals.

2. *I.V. Sedation*: There are no formal courses at the five dental school clinics in I.V. techniques, for undergraduates or for postgraduate students.

In general practice, the situation has crystallized so that there are a number of "specialist sedation practices" which offer a range of sedative techniques. There appears, fortunately, to be a decreasing number of dentists who just occasionally carry out an I.V. sedation case.

3. *Relative Analgesia*: At the moment only Sydney and Adelaide Universities are instructing undergraduates in the use of R.A. It is probable that all schools will, in due course, find time to teach undergraduates. Department chiefs are reluctant to give up any of their hours to allow students to learn this modality. The University of Adelaide is the only school to be involved in postgraduate R.A. courses.

What of the future? Here I would like to quote Ross Holland, M.B., B.S., medical anesthetist, advisor to the Health Commission of New South Wales: At a lecture given to A.S.A.A.S.D. on the 18th of June,

1976 and quoted in 'Dental Anaesthetics and Sedation' (5:3) — "I would venture to predict the following:

1. That within a decade selected dental graduates will be on the staff of anesthetic departments in some Australia hospitals.

2. That the undergraduate dentistry course will include material of relevance to dental anesthesia, and in particular a meaningful component on basic and advanced life support.

3. That the immense research expertise of the pharmaceutical companies and of university departments of anesthetics will together result in the development of new agents which will find application in the dental field.

4. That the anesthetists of the next generation will take a greater interest in the problems of their dental colleagues and strive to do their best to help."

Anesthetic and sedation concepts will continue to be practiced in Australia. A.S.A.A.S.D. is the largest special interest group in the Country with around 800 members of the approximate 5000 practicing dentists.

The role of A.S.A.A.S.D. and its plans for the future, will be the subject of later reports in this series.

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Solving the Epinephrine Problem through Plain Arithmetic

The way to solve the seemingly ever-present problem of the cardiac patient coming to your office with a request from his physician not to use epinephrine is by boning up on your arithmetic — and then using your knowledge of arithmetic diplomatically and intelligently.

A 1:1,000 solution of epinephrine contains 1 mg. per milliliter of solution. The average physician, un-schooled in the science of anesthesiology and unaware that a solution as potent as 1:1,000 of epinephrine is unnecessary for local anesthesia, assumes that all epinephrine solutions are similar to the little vial he carries around for emergency use. One milliliter of solution therefore, in the concentration with which he is most familiar, contains 1 mg. of the potent drug.

Different type doses have been advocated for use with patients with a history of coronary occlusion and other heart diseases. Some say 0.2 mg., others, 0.4 mg. For the sake of argument, let us agree on an arbitrary maximum dosage of 0.1 mg. for a patient with a recent history of a coronary occlusion — and let us agree that maximum dose should be injected very slowly and extravascularly.

One milliliter of a 1:1,000 solution is ten times the maximum. Obviously, a solution of such potency

should never be used with a cardiac patient. But what happens when a solution of 1:100,000 of epinephrine is injected? Through simple mathematics, we determine that 1 ml. of such a solution contains 0.01 mg. or 1/10 of the maximum allowable dose. Assuming that the solution is injected slowly and extravascularly a dentist using a local anesthetic solution containing 1:100,000 epinephrine could safely inject 10 ml. of the solution — assuming also that such a large amount of the accompanying local anesthetic would not hurt him.

This story is a simple one, and the difficulty of having to treat a patient without epinephrine, when you know that you need epinephrine to establish adequate and profound anesthesia and to cut down on bleeding, should be easily resolvable. Simply explain to the physician the mathematics involved, that you use a solution of local anesthetic that contains minute amounts of epinephrine, and that, if you use a local anesthetic without epinephrine, you are quite likely to cause some pain. Pain causes a flow of endogenous epinephrine, which usually far surpasses the amount of epinephrine in a dental anesthetic cartridge.

Epinephrine, therefore, in the concentrations we are accustomed to using, is a safe drug. As a matter of fact, contrary to beliefs held by some, *it is usually indicated in patients with a history of cardiac pathology, not contraindicated.*

Bruce L. Douglas, Editor

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