

“A WHIFF, OR A JAB?”

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The object of this paper is to show how a general practitioner has overcome difficulties and objections connected with dental anaesthesia by the use of an agent new to this country. Although the use of this agent has been limited in extent by the pattern of local needs, it does seem clear to the writer that the substance has considerable promise for doctors working with dentists in the general-practitioner field. This essay is concerned with the writer's personal impressions, brief reference only being made to the theoretical data.

Previous problems of a general-practitioner anaesthetist

Where general anaesthetics are given by local doctors, there are seldom enough cases for any individual to enlarge his experience to any great extent. Nitrous oxide is the most generally used agent, and is relatively safe. Unfortunately the safety of the method is often in great contrast to the turbulence of the operation. It is true that smoothness of anaesthetic and operation are often possible given ample time, but this is a factor which is usually limited for both the doctor and the dentist. Furthermore, there are always patients in whom full oxygenation is incompatible with effective anaesthesia, using nitrous oxide as the only agent. The use of adjuvants such as trichlorethylene often results in excessive salivation in unpremedicated patients and frequently prolongs the anaesthetic and recovery time.

Patients are sometimes anxious about having “gas” (a word with evil rather than therapeutic associations) because of previous unpleasant experiences. “I can't take gas”, “I fought all the way through, last time”, and “I felt every tooth coming out quite clearly”, are well-known preludes to a session memorable to the anaesthetist or the dentist, if not to the patient. The general-practitioner anaesthetist has thus both physiological and psychological disadvantages to overcome. More can be done with better results if more potent anaesthetics are used. These necessitate an adequate recovery room, a relative or friend to accompany the patient home, and the presence of the anaesthetist for some time following the

operation. These conditions are often difficult and sometimes impossible. Anaesthetics given to a patient sitting in a dental chair and during an operation on the mouth present special problems. Apart from the fact that any fall in blood pressure is greater in the sitting position than during recumbency, the anaesthetist often has difficulty in controlling the jaw, steadying the head, and operating the anaesthetic machine simultaneously. Indeed, he often has difficulty in seeing the patient at all (due to the position of the operator on one side, and the 'unit' on the other), unless he happens to be tall. An anaesthetic which maintained full oxygenation throughout would be a considerable advantage.

Disadvantages of conventional agents

Nitrous oxide is regarded as a safe agent, and the large number of administrations with few serious mishaps supports this view. Hypoxia is frequently induced, but if harm results from this it is seldom detectable afterwards. The real objection to "gas" is the method of administration. A large proportion of patients find it difficult to breathe through the nose with a mouth prop in position, and a still larger proportion start off by nose-breathing and change to mouth-breathing as consciousness is lost. This makes the percentage delivery of gas difficult to assess due to the addition of respired air through the mouth.

Mouth packs are seldom effective for this purpose, as the palate is often not sufficiently anaesthetized when their presence is most needed. Accordingly many patients vary in depth during the extraction and as the mouth cannot be occluded at this time the anaesthetist is severely handicapped in his control of the patient.

The necessity of inhaling through an anaesthetic face or nose-piece is resented by very many people, deterring them from seeking dental care. This objection is often combined with a fear of an injection into the mouth, an objection which, paradoxically, may not extend to an injection into the arm.

Thiopentone has been used in the dental chair, but this also has its drawbacks. These include laryngospasm, respiratory arrest, lowering of the blood pressure, and, if extravasation at the injection site should occur, possible skin ulceration. These may not often bother the anaesthetist, but one frequently-occurring objection remains—the length of time taken for full recovery. The patient cannot leave the chair for several minutes, often ten or fifteen, after the operation, and is frequently still disorientated and confused after a further half an hour. During the early stages of recovery violent behaviour is sometimes encountered, and this takes much longer to subside than after inhalational agents.

The writer has had to be recalled from his home to a patient who had become confused and obstreperous after apparently fully recovering from the effects of thiopentone.

Methohexitone

This is a new, short-acting, intravenous barbiturate anaesthetic agent which was claimed to have greater potency, shorter duration of effect, and more prompt and more complete recovery than from thiopentone. These claims have been found to be justified, and the advantages to the general-practitioner anaesthetist are two-fold—greater efficacy and greater safety.

Efficacy. The smoothness of induction with methohexitone is at once apparent. It is sometimes difficult to say when consciousness has actually been lost. Once established, the administration of nitrous oxide can be introduced smoothly if required. On re-awakening the patient is clear-headed and can co-operate with the dentist in mouth-rinsing.

Safety. There is no apnoea during induction, which results in a well-oxygenated patient throughout. Laryngeal spasm does not occur. Fine estimates of dosage are unnecessary, as overdosage prolongs the unconsciousness without causing profound respiratory depression. Underdosage can be supplemented safely with nitrous oxide. Methohexitone is supplied in multidose vials and has a high pH (11), which discourages infection.* The solution is non-irritant if extravasation should occur and a helpful feature to the "occasional" user is the stability of the prepared solution; six weeks at room temperature.

Personal results. Methohexitone has now been given in conditions of a small practice supplying occasional anaesthetic assistance to two local dentists on over forty occasions. The anaesthetic risk in most cases was good. One patient was in mid-pregnancy, and another had a history of spontaneous pneumothorax. The ages ranged from 14 to 46 years. All cases were for tooth extraction, the majority being multiple; the largest number was twelve. All patients became unconscious smoothly and quietly but it was noticeable that the degree of anxiety the patient showed or was known to have was clearly reflected in the depth of anaesthesia, regardless of the dosage (i.e. the greater the anxiety, the lighter the plane of anaesthesia). Upon receiving the injection, the patient (who had a dental prop in position) either closed his eyes on losing consciousness, or merely appeared to have a "glassy" vacant stare.

*Messrs. Eli Lilly and Company Limited kindly supplied me with 'Brietal Sodium' (brand methohexitone sodium).

A fasciculation of the muscles was then seen, of the same type which is often seen prior to the relaxing effect of succinyl choline, and this coincided with the establishment of full anaesthesia. At this point the anaesthetist had moved to the back of the patient and it was then possible to tell the depth of anaesthesia by firm pressure on the supra-orbital nerve. Occasionally this produced enough response to require nitrous oxide administration immediately, but almost half the cases required no adjuvant throughout. If slightly involuntary movements of the hands or feet developed during the operation, nitrous oxide was given immediately, always with smooth transition and satisfactory effect. The total time of the procedure, from needle prick to eyes re-opening, ranged from two to five minutes, the majority being just three minutes. In one case only the recovery was slower, being ten minutes in all, but no extra after-effects were produced in this case. The dentist was full of praise for the anaesthetic, as it gave him a quiet subject to work on, and did not delay him when the operation was over. Following methohexitone, the patients were questioned on their feelings. Some said they felt slight giddiness, quite mild, and short-lived, but in none of them was the disorientation and unsteadiness characteristic of thiopentone found. One patient who had an uneventful anaesthetic was very tearful and complained of a headache afterwards, but this was attributed to an anxiety state. Most patients were able to rise and walk to the waiting room quite steadily as soon as mouth-rinsing had taken place. One remarkable result, which testifies to the freedom from side effects, occurred when a patient had regained consciousness after having four permanent teeth extracted. She was asked how she felt and replied "quite well", but continued to sit in the chair. She was then asked if she was ready to leave, upon which she replied, "Aren't I having them out today, then?" She had complete amnesia after the prick of the needle, and, feeling no different, assumed that there had been no break in the conversation, whereas in fact the extraction had been accomplished in the normal way. In some heavy male patients from whom trouble was expected, both induction and recovery were quite smooth. It was quite evident from all the patients that they regarded the entire procedure as a pleasant one, and one which would hold no further terrors for them.

Scheme of use. 50 ml. of water for injection B.P. is mixed into one ampoule of 0.5 G., giving a 1 per cent (10 mg. in 1 ml.) solution, effective as long as it remains clear. Only a rough estimate of the dosage is required. With heavy patients and with large multiple extractions the dose can be 9—10 ml. (90—100 mg.), but in many patients under 10 stones (140 lbs.) in weight only 5—7 ml. (50—70 mg.) will be found satisfactory. About 20—30 seconds is the usual

time from the commencement of the injection to full anaesthesia. The nitrous oxide and oxygen is always turned on ready for use at the chairside. Patients under the influence of methohexitone appear to breathe nasally, a fact of considerable value when a nose piece has to be applied during the extraction. The throat pack can be inserted and the operation commenced when supra-orbital pressure produces no response to pain. Resuscitation with oxygen or barbiturate antagonists, laryngoscopy, or insertion of an endotracheal tube has never been necessary. It is important, however, that facilities for such procedures should be readily at hand at all times.

Summary

Various problems exist for the family doctor who gives occasional anaesthetics for local dentists. The drawbacks and dangers of existing agents in this field are considered. Methohexitone, a new agent which meets many of the present objections, is described. Some personal observations are recorded, and the practical aspect is briefly considered.

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