



Dr. Doan

A sedative technique using alphaprodine in pediatric dentistry

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My colleague, Dr. Michael Ryan, conducted a study of alphaprodine for his master's thesis in which 25 procedures were performed on 20 patients. The mean age of the patients was 3.3 years, and the range was 19 months to 6 years. In this study, alphaprodine was found to have a success rate of about 80%.

During this study, the following types of procedures were accomplished. There were 52 restorative procedures, 15 pulp therapies, 17 extractions, and 6 other types of treatment (radiographs, cleanings, etc.). Five of the patients had procedures lasting 15-30 minutes, 11 had procedures lasting 30-45 minutes, and 8 had procedures lasting 45-60 minutes (half-mouth dentistry or full-mouth dentistry). There was no promethazine used in this particular study; only alphaprodine with nitrous oxide/oxygen was used to accommodate the injection. From this study let us go into the real world of private practice.

Dr. Ryan and I combined our practices in 1975 and continued to use this alphaprodine technique. From our experience we established the alphaprodine dosage level to be .44 mg/kg. We considered using an antiemetic drug along with alphaprodine to alleviate nausea and started to use promethazine. We also decided that because our dosage level was fairly conservative compared to what other practitioners in the country were using at the time, we did not need to decrease our dosage level of alphaprodine. Thus, we generally used a standard, 25 mg PO, dose of promethazine at the time of the appointment. This did seem to decrease the amount of nausea in the office. I cannot give you statistical figures on how effective it was, but it was clinically significant to us as practitioners.

When we started using the promethazine PO along with the alphaprodine in 1977, we started using questionnaires and follow-up calls after the appointments. We developed a form to record the data on procedures; the technique that took place, the age and weight of the patient, the dose that was given to the patient, and the patient's home telephone number. The type of procedure done and any medications used

were also recorded. As a result of my training, I do not give patients with seizure disorders promethazine. In some cases we did not use nitrous oxide/oxygen and this would be duly noted on the form.

There has never been any other combination of drugs in our office. We've used promethazine, nitrous oxide/oxygen and alphaprodine, or the patient has received general anesthesia in the hospital.

Following each visit, our registered nurse is responsible for making a postoperative call to each patient. The questions asked at that time are:

- (1) Is the patient experiencing pain after the procedure?
- (2) Does he need any type of analgesic medication?
- (3) Is there any nausea?
- (4) Did the patient sleep? We generally encourage our parents to take the patients home; and, if patients are a little sleepy, we suggest the parent allow them to sleep for about 45 minutes, check on them at least every 15 minutes, and allow them to sleep on their stomachs.
- (5) Has the patient eaten? We want to avoid dehydration since they were NPO, generally for 4-6 hours, prior to the procedure. Until they get home, they may be NPO for periods of 7-8 hours. Dehydration is a possible hazard in the young child, especially the 18- to 24-month-old child.

Over the last five years the results of 6,000-7,000 cases were compiled. You may be curious to know why we have so many alphaprodine cases, so I would like to describe our practice.

We are in a nonfluoridated water area. San Antonio is the tenth largest city in the U.S. and there is still no water fluoridation. We have rampant decay of a nature that most pedodontic practitioners no longer see. We see nursing bottle caries a great deal. We have a high concentration of Latin people in our area who tend to be very permissive with their young children. Thus, we find a great deal of dietary permissiveness and carbohydrate consumption (bottle mouth syndrome).

We see approximately 50 patients a day, and

generally 20% (8-10) require alphaprodine sedation. I might add that since alphaprodine has been unavailable, our hospital admissions have increased by about 30%.

We do not routinely reverse our patients. There have been 15 instances in the last five years where we did reverse a patient. Ten had prolonged grogginess or sedation, and we were uncomfortable releasing them. These patients were reversed with naloxone and there were no complications.

One patient had abnormal vital signs. This patient very definitely had some cyanosis, circulatory collapse, and respiratory depression and we reversed him immediately. He was given positive pressure oxygen, monitored in the office for about two hours, and then sent home in a responsive and stable condition. Alphaprodine has been used subsequently in this patient without difficulty. We later discovered that the problem was not with the alphaprodine, but

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was due to a combination of medications the patient was taking that we were unaware of. The patient had been administered drugs which we could not identify by a physician in Mexico. There were four other patients that had difficulties postoperatively. These were either asthmatic patients or patients taking an antihistamine that they failed to tell us about.

Our monitoring consists of verbal commands and responses according to Bennett's definition of conscious sedation: "conscious being that state where the patient is capable of rational response to command and has all protective reflexes intact including the ability to clear and maintain the airway in a patent state." If at any point we feel that a patient is overly sedated or not responding to verbal commands, we will monitor their blood pressure, pulse, and respirations. This is continued at frequent intervals until the doctor decides that the patient is stable, recovered, or needs to be reversed. When we reverse a patient, we ask that they stay in the office for at

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least one hour in our recovery area to be sure that they have recovered from the sedation, that they have not had any rebound, and that they are over any respiratory depressant effects that may have been present.

Our alphaprodine administration technique has changed in the last few years only in that we used a 'low-dose syringe' — a 0.5 cc syringe instead of a 1 cc syringe. This improves our accuracy in drawing the drug out of the vial. We have not varied from our dosage level.

We give the alphaprodine injection while administering nitrous oxide/oxygen at a 50% flow. As soon as the alphaprodine is given submucosally, the patients receive 100% oxygen for ten minutes. When the local anesthetic is given, the patient is again introduced to a 50% flow of nitrous oxide/oxygen. Following the administration of the local anesthetic, 100% oxygen is given again for five minutes, then the operative procedure is started. We may, or may not utilize the nitrous oxide/oxygen during the operative procedure. If we do, it's never used at a concentration greater than 20% nitrous oxide, 80% oxygen. An exception to that might be a painful extraction or a cellulitis where anesthesia is difficult and we feel that it will be a painful experience in spite of all we've done. In this case, we might return to the 50% flow of nitrous oxide/oxygen mixture.

I might add that a patient, once sedated, is never left unattended. We do utilize a registered nurse in our office a great deal because of the number of sedation procedures that we do. We have an open bay system using glass partitions so that visual contact can be maintained with patients at all times. Though I may be two chairs away, I can still maintain visual contact with every patient that is sedated in the office.

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