Comparison of the Effects of Acupuncture and Codeine on Postoperative Dental Pain

"Acupuncture treatment has been used for thousands of years in traditional Chinese medicine.... Within the last 2 decades, acupuncture use has been extended in mainland China and elsewhere to the production of anesthesia.... In 1960, the theory of acupuncture anesthesia and analgesia was reported by delegates from different cities of mainland China in their national conference in Shanghai for the exchange of experiences with the combination of traditional Chinese and Western medicine. That conference aroused vast interest with respect to the analgesic effects of acupuncture...."

"On the other hand, Brennan's group found that acupuncture was inferior to nerve block or oral narcotics for producing analgesia in experimental dental pain. Sung also found that acupuncture produced incomplete analgesic effects in comparison with local anesthetic agents in dental surgery.... The present experiments systematically studied the efficacy of acupuncture analgesia in comparison with analgesia produced by a standard oral narcotic analgesic—codeine—in postoperative dental pain. A placebo condition was included in the study, and all data were collected on a doubleblind basis...."

"Forty healthy male volunteers in the age range of 18 to 30 participated in this study.... All volunteers had had operations for multiple tooth extractions, mainly wisdom teeth. The volunteer's medical history was recorded before operation.... The only anesthetic used was 2 percent lidocaine without epinephrine), administered in multiple local injections in a total volume of 1.8 to 6 ml.

"As soon as the patient was free of the effects of the local anesthesia... a trained nurse observer asked the patient to classify the intensity of his pain as no pain (0), mild (1), moderate (2), or severe (3). Immediately after this, the patient received one of the following 4 treatments, administered by the investigator, who had not been with the patient until this time. The treatment groups were:

1. Placebo group (A_D_0): Lactose in plain capsule, and 2 inactive acupuncture points (acupuncture placebo).
2. Codeine group (A_D_1): Codeine (60 mg), in plain capsule, and 2 inactive acupuncture points.
3. Ho-Ku group (A_1_D_0): Lactose in plain capsule, and 2 Ho-Ku points.
4. Codeine and Ho-Ku group (A_1_D_1): Codeine (60 mg), in plain capsule, and 2 Ho-Ku points.... Active acupuncture, or Ho-Ku, points are on the meridian large intestine #4. . . .

"Inactive acupuncture points, or acupuncture placebo, are on the midline of the thenar web, 5 mm above the edge.
... This point was selected because it is close to the Ho-Ku points, but it is not on the meridian.

“Manual stimulation was applied in all 4 groups. The needles remained on both hands for 15 minutes. The pain intensity score was recorded by the observer at half-hour intervals for 3 hours. A double-blind condition was maintained, insofar as neither the patient nor the observer were aware of which of the 4 treatments was being given. Baseline (pretreatment) pain intensity scores were obtained for each of the 40 study subjects. The study shows that acupuncture has significant analgesic effect in pathologic pain. Acupuncture also produced significantly greater pain relief than acupuncture placebo, for up to 2½ hours after its application. Fifteen minutes of manual stimulation of both Ho-Ku points produced statistically significant analgesia for 2½ hours in patients with acute postoperative dental pain.

“After a single 15-minute treatment, acupuncture analgesia in postoperative dental pain had a rapid onset but short duration of action (good pain relief for about 1½ hours). In contrast, codeine had a slower onset of action but a longer duration than acupuncture. At the first half-hour time period the Ho-Ku (A₁D₄) group alone exhibited more pain relief than did the combined codeine and Ho-Ku group (A₁D₅). The difference between the 2 groups at this time point is very pronounced.

“Some individuals have raised the question of whether significant pain occurs following multiple tooth extraction. Postoperative dental pain is significant. Only 2/46 volunteers (4.3%) had no pain after recovery from local anesthesia, and they were excluded from the study. In fact, none of the treatment modalities—drug placebo, acupuncture placebo, Ho-Ku, codeine, or combined codeine and Ho-Ku—gave complete pain relief for the total population.”

Evaluation of Intravenous Diazepam as a Surgical Premedicant


“Diazepam is one of the drugs most frequently used for surgical premedication. We...investigated amnesia, relief of anxiety, sedation, and patient acceptance of IV premedication with diazepam in graded dosages by randomized, double-blind sequence. One hundred forty patients were studied, only patients who gave a history of sensitivity to the benzodiazepines being excluded. No restrictions were made on the use of general, regional, or topical anesthesia. No patient received any other sedative or analgesic on the day of operation.

“Patients were brought to a preoperative holding area... one hour before operation. Infusions were started, patients were interviewed, and medications were administered IV according to a double-blind, randomized Latin-square sequence. Patients were divided into 4 groups of 35 persons. diazepam being given in group dosages of 2.5, 5, 10, or 20 mg. A trained nurse observer recorded patient responses throughout the preoperative period and 24 hours postoperatively. Patients were asked to self-evaluate their anxiety before medication as none (0), mild (1+-), moderate (2-), or severe (3+). Immediately after diazepam injection, observations were made for signs and symptoms of possible side effects or sensitivity.

“Fifteen minutes after administration, the nurse observer, without informing the patient, scored the patient's sedation level as 1+, 2+, 3+, or 4+ improved over his unpremedicated state, 1-, 2-, 3-, or 4-, worsened, or 0, unchanged. The patient was then asked to score his anxiety level as compared to his unpremedicated state in a similar manner. Postoperative observations were made 24 hours after operation.
One of the primary reasons for premedication is to relieve subjective complaints of the patient, e.g., anxiety.... All quantal responses were transformed by ridit transformation....

"The search for the ideal surgical premedicant is unending.... In 1951... Cohen and Beecher condemned the routine use of narcotics for premedication in the absence of pain. They compared 15 mg of morphine and 0.6 mg of atropine/70 kg, 90 mg of pentobarbital and 0.6 mg of atropine/70 kg, and 0.6 mg of atropine/70 kg, given subcutaneously, concluding that the barbiturate provided sedation equivalent to the narcotic with fewer side effects.... Development of the benzodiazepines in the 1960s provided an alternative to the use of barbiturates and opiates for premedication.

"Brandt and Oakes compared the effects of pentobarbital (100 mg), diazepam (20 mg), and placebo, administered orally at bedtime the night before and again 90 minutes preoperatively. This dose of diazepam proved superior to the barbiturate in allaying patient anxiety and in providing sedation. Cormier's group, studying meperidine (100 mg IM) versus diazepam (10 mg IM) in a weight-related dosage scale, ... found no statistically significant difference between the drugs, but what difference was observed tended to favor diazepam.

"Steen and Hahl compared diazepam (10 mg and 20 mg IM) with a placebo, reporting diazepam-medicated patients to be well sedated and with retrograde amnesia for preoperative events. No difference was found between 10 and 20 mg of diazepam, and the authors recommended the lower dose for most surgical patients.... The amnesic properties of diazepam have been discussed in a number of articles....

"We measured amnesia only at 15 minutes after injection; at this point, there was a significant dose-related effect at 10 and 20 mg. Our preliminary results of subsequent diazepam studies (unpublished) indicate marked increase in amnesia in the first 1.2 minutes after IV injection, lack of recall being in excess of 60 percent for 20 mg diazepam during this period and decreasing thereafter through one hour.... If, in our study, amnesia measurements had been made in the first 5 minutes after injection, it is possible that there would have been a dose-related amnesic effect seen with all 4 dosages. The decrease in anti-anxiety effect at 30 minutes is also probably related to the initial rapid decrease in plasma level of diazepam, so that at 2.5 and 5 mg, there is a minimal concentration due to redistribution from the brain.

"Unlike several studies previously discussed which showed diazepam (10 mg) to be as effective as 20 mg given IM, we observed a linear dose-related effect for anxiety relief, sedation, and patient acceptance for all 4 dosages, with the exception of the 30-minute value for patient evaluation of sedation for the 5 mg dose.... Diazepam (10 and 20 mg) maintained sufficient sedation and anxiety relief throughout the 30-minute test period, in contrast to the lower doses. In this study, diazepam effect showed a large individual patient variability.... Many patients take oral diazepam regularly for treatment of anxiety and consequently may require larger doses for anesthetic premedication."