TITLE: REGIONAL INTRAVENOUS INJECTION OF Ca-ANTAGONIST IN THE TREATMENT OF RAYNAUD'S SYNDROME AND REFLEX SYMPATHETIC DYSTROPHY

AUTHORS: M.Kawanishi,M.D., R. Hosoda, M.D., Y. Kurokawa,M.D., A.Enomoto, M.D. and Y. Shimada, M.D.

AFFILIATION: Department of Anesthesiology, Nagoya University Schoolof Medicine, 65, Tsurumai-cho, Showa-ku, Nagoya, 466 Japan

Regional intravenous injection(RII) of guanethidine has reportedly been effective in the treatment of reflex sympathetic dystrophy(RSD)1. But guanethidine is not available in the official clinical settings. Recently, Ca-antagonists have been used clinically as effective vasodilators. Although the relation between the effect of Ca-antagonist and catecholamine is still unclear, Ca-antagonist may have alpha-receptor blocking properties. The purpose of the study is to evaluate the effect of Ca-antagonist in patients with Raynaud's syndrome or RSD.

Two patients with Raynaud's syndrome and two patients with RSD were used (after informed consent and institutional approval). Verapamil(5mg), nicardipine(2mg) and diltiazem(5mg) were used. Each Ca-antagonist was diluted with 20ml of 0.5% lidocaine and RII technique was employed 1. RII was repeated once a week and every Ca-antagonist was tried. Verapamil, nicardipine and diltiazem were used in that order. Effects were estimated by the measurement of skin temperature using thermography and by the direct interview to the patients on the day and 1 week after the treatment. Among these Ca-antagonists, nicardipine and diltiazem showed excellent results. These drugs produced pain relief and increased skin temperature for several days, while verapamil showed significantly shorter effect. One patient who was suffering from RSD recovered completely after this treatments. But small side effect was observed. Diltiazem produced itching sensation for 10 min. after release of the tourniquet. Nicardipine produced no uncomfortable effects. Plasma Ca-antagonists levels were measured both in the treated and untreated limbs at 4 points, before injection(control), 1,10 and 40 min. after the release of the tourniquet pressure. Only in the treated limb, a high concentration of the drug was detected especially at 1 min.after release of the tourniquet, and declined quickly to the normal level at 40 min. after release. No significant blood pressure fall was observed.

The present results of Ca-antagonist suggest several possibilities. First, Ca-antagonist may play guanethidine like action to deplete catecholamines. Second, there may be abnormal functions of Ca-channel and Ca-binding in the vascular smooth muscle membrane of these patients. Third, negative feed-back may be inhibited by the treatment, resulting in the cessation of production of vasoactive substances like prostaglandins, kinins or another unknown products. When the normal subjects were treated with RII of Ca-antagonist, the increase in the skin temperature was temporary, suggesting Ca-antagonist could not deplete catecholamine from the nerve endings of the normal subjects. Another two possibilities are now under investigation.

We conclude that nicardipine and diltiazem could be an effective alternative to guanethidine in the treatment of Raynaud's syndrome and reflex sympathetic dystrophy.

References 1.Hannington-Kiff,Lancet 1:1018,1974

A810

TITLE: EVALUATION OF TESSALON PERLES FOR TOPICAL ORO-PHARYNGEAL ANESTHESIA

AUTHORS: P.D. Mongan, M.D., R.D. Culling, D.O.

AFFILIATION: Anesthesia Service, Brooke Army Medical Center, Fort Sam Houston, TX 78234

Introduction. Awake tracheal intubation is the safest method of managing patients with difficult airways or potential spinal injuries. The goal is to maintain an alert comfortable patient exhibiting minimal response to intubation. In this prospective study, we compared Tessalon Perles (TP) (Na Benzonatate; Du Pont) a potent encapsulated mucous membrane anesthetic, with superior laryngeal nerve blocks (SLNB) and topical benzocaine gargle for oro-pharyngeal anesthesia prior to awake intubation.

Methods. After Institutional Review Committee approval, 40 patients scheduled for surgery with indications for awake intubations were studied. Patients were randomly assigned to receive either SLNB (4cc 1% lidocaine bilaterally) with 20% benzocaine (20cc) gargle or TP. For nasotracheal intubation, 6cc of 2% lidocaine jelly was also placed into the appropriate nostril. Transtracheal blocks were performed in all patients with 4cc of 4% lidocaine. The time to complete oro-pharyngeal anesthesia was measured from beginning of SLNB placement to completion of the benzocaine gargle in the SLNB group, and from placement of the TPs in the patients mouth until both capsules were crushed and swallowed in the TP group. Supplemental intravenous sedation was administered as needed. Intubations were performed as either blind nasal or oral fiberoptic guided. A staff anesthesiologist blinded to the method of airway anesthesia evaluated intubating conditions as either: 1-no response, 2-minimal response, 3-moderate (gagging or straining), 4-unable to intubate.

Results. Demographic data were similar in both groups. Intubating conditions were excellent (grade 1) in 17/20 (85%) patients in the SLNB group, and 19/20 (95%) in the TP group ($p>0.05$). All other intubations were graded as 2. There were no unsuccessful intubations in either group. The amount of supplemental sedation given was minimal and similar in both groups. The time required to obtain topical airway anesthesia was significantly greater in the SLNB group (339 $\pm$ 22 sec.) compared to the TP group (55 $\pm$ 5 sec.), $p < 0.005$.

Discussion. Awake tracheal intubation has many advantages in a variety of clinical settings. Anesthesia can be reliably obtained with either SLNB and topical local anesthesia or nebulized lidocaine.(1) These methods require additional set up time, can be uncomfortable to the patient, and may have the potential for local anesthetic toxicity. The results of our study indicate that the use of a potent encapsulated local anesthetic (TP), can provide excellent oro-pharyngeal anesthesia quickly, (<1 minute), reliably, and with minimal pre-anesthesia preparation.

References.

1. Sutherland AD. Anesth Analg 65:89, 1986.