

"Prehospital Analgesia with Acupressure in Victims of Minor Trauma: A Prospective, Randomized, Double-Blinded Trial"

Abstract:

Untreated pain during the transportation of patients after minor trauma is a common problem in emergency medicine. Because paramedics usually are not allowed to perform invasive procedures or to give drugs for pain treatment, a noninvasive, nondrug-based method would be helpful. Acupressure is a traditional Chinese treatment for pain that is based on pain relief followed by a short mechanical stimulation of specific points. Consequently, we tested the hypothesis that effective pain therapy is possible by paramedics who are trained in acupressure. In a double-blinded trial we included 60 trauma patients. We randomly assigned them into three groups ("true points," "sham-points," and "no acupressure"). An independent observer, blinded to the treatment assignment, recorded vital variables and visual analog scales for pain and anxiety before and after

treatment. At the end of transport, we asked for ratings of overall satisfaction. For statistical evaluation, one-way analysis of variance and the Scheffé F test were used. $P < 0.05$ was considered statistically significant. Morphometric and demographic data and potential confounding factors such as age, sex, pain, anxiety, blood pressure, and heart rate before treatment did not differ among the groups. At the end of transport we found significantly less pain, anxiety, and heart rate and a greater satisfaction in the "true points" groups ($P < 0.01$). Our results show that acupressure is an effective and simple-to-learn treatment of pain in emergency trauma care and leads to an improvement of the quality of care in emergency transport. We suggest that this technique is easy to learn and risk free and may improve paramedic-based rescue systems.

Introduction:

In most European countries, patients with minor trauma and small injuries, such as digital fractures, small wounds, and contusions, are transported to the hospital by ambulance ⁽¹⁾. In Central Europe, the

accompanying paramedics are not allowed to perform any invasive procedures or to use any drugs for pain treatment. The United States also strictly limits pharmacological pain treatment by paramedics. Therefore, victims of minor trauma, who do not require treatment by an emergency physician, often experience pain during transport⁽²⁾. This situation is uncomfortable both for the patient and the paramedic. Besides this emotional component, pain provokes autonomic responses that markedly increase adrenergic nerve activity and plasma catecholamine concentrations⁽³⁾. The consequences are increased heart rate⁽⁴⁾, hypertension⁽⁵⁾, arteriolar vasoconstriction, reduced wound perfusion, and decreased tissue partial pressure of oxygen, which increases the risk of wound infection⁽⁶⁾.

To reduce these unfavorable side effects, the availability of a noninvasive, nondrug-based therapy would be beneficial...Acupressure is based on the same traditional concepts and mechanisms as acupuncture. Acupressure has been used to treat different types of pain,

such as tension headaches, histamine cephalgia, migraine, and labor pain⁽¹⁹⁾. A significant analgesic effect has also been described for relief of postoperative pain⁽¹⁷⁾.

Therefore, acupressure is likely to provide an effective method for pain treatment that can be performed by paramedics in charge of victims of minor trauma. Accordingly, we conducted a prospective, randomized, double-blinded study to test the hypothesis that performing acupressure on victims of minor trauma in the prehospital setting decreases pain. We also expected that the acupressure treatment would decrease anxiety and increase patient satisfaction. Finally, it was our aim to prove that belief in acupressure has no effect on the effectiveness of our treatment.

Methods:

With IRB approval and patients' informed consent, we included 60 minor trauma patients aged from 19 to 99 yr with minor trauma or small injuries, such as simple fractures, small wounds, and contusions. Results were evaluated on an intention-to-treat basis once patients

were admitted to the study...At the site of the accident, the patient was approached by two paramedics, Paramedic A (treatment) and Paramedic D (data collection)...After the medical intervention (e.g., bandaging of the wound), the patient was asked to participate in the study. After obtaining informed consent, Paramedic A left the site. Paramedic D recorded demographic and hemodynamic variables, including noninvasive blood pressure and heart rate. The patient was asked to rate his or her pain and anxiety by using a VAS, then Paramedic D left the patient. Moreover, the patient was asked whether he or she believed in acupressure as a treatment for pain...Patients were treated according to group assignment for approximately 3 min (in case of Group 3, this resulted in waiting). Stimulation was performed with a finger of Paramedic A. Afterward the patient was brought to the ambulance. Paramedic D had to sit in front of the car while Paramedic A stayed with the patient in the back of the car (sections of the ambulance are separated by a rigid wall). On arrival at the hospital,

the same values were again recorded by Paramedic D...

Discussion:

The administration of analgesics is restricted in paramedic-based rescue systems ⁽²⁾...The logical consequence of this lack of treatment is that thousands of patients every year have to experience significant pain before they reach the hospital. Consequently, it was our aim to find a noninvasive and nondrug-based treatment for pain after nonlife-threatening trauma...The main result of this trial is that well performed acupressure—even by a nonphysician—is a fast and effective treatment of pain. Furthermore, anxiety decreased, probably as a logical consequence of reduced pain and more comfort. The correctly treated patients were significantly more satisfied with the quality of care given to them. Patients with correct acupressure were significantly more satisfied than those in the sham group or in the no-treatment group. The changes in the VAS for pain and anxiety were not only statistically significant, but they were also of significant clinical relevance, which is

supported by the observed clear decrease of heart rates in our true-acupressure group. Stimulating particular points by using either needles or pressure causes a measurable release of endorphins into the blood ⁽²⁰⁾. The activation of small myelinated nerve fibers sends impulses into the spinal cord, midbrain, pituitary, and hypothalamus ^(21,22). Various endorphins block incoming pain information through the release of serotonin, norepinephrine, and possibly γ -aminobutyric acid ^(17,21). There are different traditions and styles of acupuncture ⁽¹⁷⁾. Acupuncturists from different schools may recommend a very different choice of points for any particular patient. There is, however, good agreement on the location of commonly used classic points. Acupressure is an essentially risk-free, noninvasive, and cost-effective treatment for pain. The effect of acupressure for acute pain relief lasts approximately 30 minutes or, in some cases, even for a few days ⁽²³⁾. In summary, our results could show that acupressure is an effective and

easy-to-learn treatment for pain in first aid and emergency trauma care. We recommend this technique for emergency physicians and also for nonacademic personnel, such as nurses, paramedics, firefighters, or emergency medical technicians.

Kober, Alexander MD*†‡; Scheck, Thomas MD*†‡; Greher, Manfred MD*†‡; Lieba, Frank BS†‡; Fleischhackl, Roman BS*†‡; Fleischhackl, Sabine BS*†‡; Randunsky, Frederick BS†‡; Hoerauf, Klaus MD*
Prehospital Analgesia with Acupressure in Victims of Minor Trauma: A Prospective, Randomized, Double-Blinded Trial, *Anesthesia & Analgesia*: September 2002 - Volume 95 - Issue 3 - p 723-727 doi: 10.1213/00000539-200209000-00035

A URL to the original source content is linked to the title and navigates to an external website which may require approval by the 3rd party provider to access.