Local anesthesia blocks the antiemetic action of P6 acupuncture

The incidence of postoperative illness was monitored for 6 hours in 74 women premedicated with nalbuphine, 10 mg, and undergoing short gynecologic operations of similar duration under methohexital-nitrous oxide-oxygen anesthesia. Each patient received P6 acupuncture for 5 minutes at the time of administration of premedication. In random order the site of the acupuncture had been previously infiltrated with normal saline solution in half of the patients and 1% lidocaine in the remaining patients. Postoperative emetic sequelae occurred significantly more often in those who received lidocaine compared with the group that received saline solution. This demonstrates the ability of a local anesthetic administered at the point of stimulation to block the antiemetic action of P6 acupuncture in a manner similar to that shown by others for analgesia. (CLIN PHARMACOL THER 1991;50:78-80.)

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We have shown that stimulation of the P6 acupuncture point, Neiguan, will, under appropriate circumstances, reduce the incidence of nausea and vomiting in the postoperative period,[1,2] after cancer chemotherapy,[3] and in early pregnancy.[4] The mechanism of action is not known.

In the postoperative period, from which comes almost all the scientific data on the subject, stimulation of a point near the right elbow but outside the recognized acupuncture meridians had no antiemetic action,[1] thus minimizing the likelihood of a purely psychologic effect from stimulation of P6. Acupuncture analgesia can be blocked by infiltration of the relevant nerves with a local anesthetic,[5,6] supporting the view that a neural mechanism could be involved. To see if this applies to acupuncture antiemesis, we carried out a controlled study in which the skin and superficial tissues at the P6 point were infiltrated with either a local anesthetic or normal saline solution before acupuncture.

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Table I. Age and weight of patients and duration of anesthesia

	Saline (n = 37)	*Lidocaine (n = 37)*
Age (yr)	34.7 ± 9.4	33.2 ± 9.2
Weight (kg)	60.8 ± 6.1	59.5 ± 7.7
Duration of anesthesia (min)	7.0 ± 1.61	7.2 ± 1.78

Data are mean values ± SD.

METHODS

The study, which was approved by the university medical ethical research committee, was carried out on 74 women of childbearing years and weighing between 50 and 75 kg, scheduled for short diagnostic minor vaginal gynecologic operations. All gave verbal consent. Premedication was standardized at 10 mg nalbuphine given intramuscularly 60 to 90 minutes before surgery followed immediately by acupuncture at the P6 point on the dominant side, with a 33 to 35 standard wire gauge disposable stainless-steel needle

Table II. Incidence of postoperative sickness in patients who received P6 acupuncture at the time of administration of the premedication (10 mg nalbuphine); the site of puncture was infiltrated with either 1 ml saline solution or 1 ml 1% lidocaine immediately before the acupuncture

	Saline (n)			*Lidocaine (n)*		
Hours	*V*	*N*	*Neither*	*V*	*N*	*Neither*
0-1	5	2	30	6	11	20
1-6	0	7	30	7	6	24
0-6	5	2	30	13	6	18

V, Vomiting, with or without nausea or retching; N, nausea alone.

that was stimulated for 5 minutes by manual rotation. The point, also known as Neiguan, lies 2 "Chinese inches" from the distal wrist crease between the tendons of palmaris longus and flexor carpii radialis, the needle being inserted to a depth of about 1 cm under the skin, when patients usually experience a "nonanatomically distributed" sensation either up their arm or into the hand.[7] Immediately before the acupuncture, the site had been infiltrated with either 1 ml saline solution or 1% lidocaine from randomly coded ampules. A small amount of solution was injected intradermally, the remainder being placed subcutaneously. Patients and anesthesiologists were unaware of the solution used.

Patients were undisturbed until transport to surgery, where a standard anesthetic of methohexital-nitrous oxide-oxygen was given, as described elsewhere.[8-10] They were seen at the end of the first and sixth postoperative hours. The occurrence of nausea alone and vomiting, with or without nausea and including retching, was noted in the recovery ward (0 to 1 hour) and in the 1- to 6-hour period, together with the overall incidence of vomiting and nausea (0 to 6 hours). As in our previous studies,[1,2] the patients had been told that the use of acupuncture was an attempt to reduce the side effects of premedication. No reference was made to nausea or vomiting until after the 6-hour observation, when the nature of the study was fully explained.

The code was not broken until completion of the study, at which time there were 37 patients in each group. Statistical comparison of the overall frequency of illness in the two series was with the χ^2 test, pooling the incidence of nausea and vomiting.

RESULTS

As expected, no patient complained of pain from insertion of the acupuncture needle. Anesthesia was uneventful in all patients and none was distressed by the procedure.

The two groups of patients were broadly comparable with respect to age and weight (Table I). Of greater importance was the similarity in duration of anesthesia.

There was a significantly higher overall incidence of emetic sequelae in those patients in whom infiltration was with lidocaine ($\chi^2 = 8.50$; $p = 0.0139$) compared with those injected with saline solution (Table II). This difference also applies if vomiting only is considered.

DISCUSSION

The reliability of the method of study used here has been well authenticated[8,9]; one evaluation involved more than 10,000 administrations.[10] The reproducibility of the incidence of vomiting in the strictly controlled patient population and anesthetic regimen has been studied in detail,[2] and the number in each series is adequate. Within the range quoted, neither age nor body weight influenced the outcome. Provided no attempts are made to quantify its severity, the frequency of occurrence of nausea as the sole symptom was also justifiable. No drugs, such as atropine, volatile anesthetics, or oxytocics, which could influence the frequency of illness, were given.

The incidence of postoperative sickness in the lidocaine-treated group is similar to that in our previously reported large control (nalbuphine premedication, no acupuncture) group of comparable patients.[2] More significant is the similarity of findings in this saline-treated group (19% nausea or vomiting) and in our previous P6 acupuncture group (22% nausea or vomiting).

Although acupuncture with a fine needle at the P6 point would usually be painless, the ischemia produced by the intradermal injection could have contributed to this in both groups of patients. One can ex-

clude a psychologic explanation for our findings. There must be blocking of the pathways for transmission of the antiemetic action of stimulation of P6, analagous to that reported whereby local anesthesia similarly blocks the analgesic action of acupuncture.[5,6] The P6 point is somewhere between the skin and 1 cm deep, superficial to the median nerve, but its exact location is not known. The work on analgesia, together with this study, supports the role played by the nervous system in the therapeutic action of acupuncture.[11] It is worth noting that European workers claim to have demonstrated an anatomic basis for acupuncture channels,[12,13] although their significance is not clear.

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