Recent Experiences with Acupuncture Anesthesia

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Acupuncture anesthesia has been under research since 1959 in China. This method of anesthesia originated from the idea that postoperative pain could be relieved with the use of acupuncture, and the pain experienced during the surgery could be relieved as well.

Initially, acupuncture anesthesia was administered stomatologically for the extraction of teeth and also for cases of tonsillectomy.

Being encouraged with those successes, the Chinese doctors extended this technique to lung surgery which was undertaken, also with great success, in 1960. Acupuncture anesthesia has been performed in over 250 types of surgery to date. Up to the middle of 1971, more than 400,000 patients had been operated on, under this anesthesia with 90 % success.

These Chinese reports instantly produced remarkable interest from anesthesiology all over the world. Of course there remain a few people who will not accept the truth about acupuncture.

In our pain clinic, acupuncture has been combined with conventional nerve block therapeutic procedures since 1965. Over 10,000 patients have been treated at our center. Acupuncture has also been under research for use during surgical procedures since 1966 in our department. This application has also been aimed at postoperative syndromes such as suture pain, headache, low-back pain, pain during continuous intravenous infusion, disturbance of urination intestinal-paresis, difficulty in expectoration and so forth. The results have proven excellent.

Based on our experiences, since September, 1972, acupuncture has been actively applied for the purpose of anesthesia during surgery.

As of the end of August 1973, 87 cases have been anesthetized with acupuncture at our clinic. As a result, we can know document detailed and accurate evaluations for this method of anesthesia.

The age groups and sex distributions of the subjects are shown in table 1. The youngest was a 10 year old male undergoing tonsillectomy,
while the oldest was a 72 year old female having her fractured clavicle repaired. The number of males was 32, which is fewer than that of females, 55. This was due to the large number of gynecological surgeries.

The types and number of operations were as follows: 8 cases of orthopedic surgery, 34 cases of obstetrical-gynecological surgery, 28 cases of stomatological surgery including tooth extractions, 9 cases of otorhino laryngological, 7 cases of general surgery, and 1 case of ophthalmological surgery. There were 17 cases of laparotomy, all lower abdominal surgeries.

Supra-gastric operations have not been experienced because of the contraindication for acupuncture anesthesia. Anesthesia for craniotomies and thoracotomies has not been done by us either, although there remains marked indication for use of acupuncture in this type of surgery. Anesthesia with surgery of the lower extremities has not been performed since the effects of acupuncture anesthesia for the lower extremities is markedly inferior to that of the upper extremities.

Preanesthetic medication was prescribed for all patients except the out patients with tooth extractions. Premedication consisted generally of the usual dose of atropine and a moderate dose of a minor tranquilizer, such as 100 mg of "atraz p" (Hydroxyzine Hydrochloride). In China, Pethidine is mainly used. We administered 50 mg of this drug in a few cases and had moderately satisfactory results.

"Selection of the acupuncture points."

Needling to an acupuncture point named Gō-Koku (Ho Ku) which is located between the thumb and index or fore-finger as shown in Fig. 1 is enough to obtain sufficient anesthesia for surgery of the upper extremities, neck, face and head. We obtained satisfactory results selecting only Gō-Koku for tonsillectomy, sinus operations, resection of the submandibular gland, tooth extraction and repair of fractured clavicles. By "needling" Gō-Koku, a special sensation must be elicited to obtain good anesthesia. This sensation is called Tokki, which means heaviness, swelling, numbness and soreness at the point of "needling" foci, gradually creeping up towards the shoulders from the fingers.

Recently, for tooth extractions, Gekan, Kyōsha, Shikahn or Hanryo, which are located in the facial region as shown in Figure 2 are selected when desiring local anesthesia effect in addition to Gō-Koku. It can not be said, however, that the greater the number of needles the larger the anesthetic effect.

For laparotomy of gynecological surgery through the vagina, Ashisanri, Koson and Saninkō were
needled as standard points. Removal of pain when extracting the viscera, and also good muscle relaxation are obtainable by this combination of points.

Ear or nose needling has been applied in some cases. However, there were no cases in which complete anesthesia was anticipated with only ear or nose “needling.”

In the earlier stage of the development of acupuncture anesthesia in China, the inserted needles had been twisted or picked during the total course of the operation. This manipulation is to create new stimuli incessantly. Nowadays, however an electrical acupunctural machine is widely used in China.

In our department too, an electrical machine was utilized in all cases except one. Initially, an electric machine of low frequency current with one second off and 2 seconds on was utilized in several cases.

Next, an acupuncture therapeutic machine of low frequency current was used in more than 10 cases with considerably satisfactory results. With this machine, a positive-negative waveformed spike or distorted rectangle of between 1 to 5 cycles per second and 5 to 10 volts is obtainable.

Later, various machines were examined. Now, a machine having the wave seen in figure 3 is mainly utilized by us.

This machine has 8 extension cords (Figure 4). The volume of electricity in each cord can be adjusted respectively. The optimum frequency of the current seems to be 1 to 3 cycles per second. In the use of this kind of machine, twitchings can be seen around the needle according to each electrical cycle. It is preferable to restrict the electrical volume to as little as the patient can tolerate at the beginning of electrical conduction, and to increase it gradually as the surgical operation progresses.

The operation is initiated after at least 15 minutes of electroconduction. This period is called the induction time. The significance of induction time is to elevate the pain-threshold by the inhibition effect in the cortex, which is the result of the accumulation of the acupuncture stimuli.

Just before or immediately after the beginning of the operation, approximately 30 mg of pentazocine or 5 to 10 mg of diazepam was given to the patient intravenously in many cases. During the operation, some dose of these drugs were administered additionally. In stead of diazepam, a small dose of droperidol was sometimes administered.
The effectiveness of these supplementary drugs was realized in first case of tonsillectomy. In this patient, the initial operation had been attempted under local anesthesia. The operation was obliged to be given up because of the fainting caused by local anesthetics. Acupuncture anesthesia was considered for the next operation. Moderate pain was noticed at the manipulation of deep tissue. Thirty mg of pentazocine was administered intravenously just prior to the procedure of the other side. This resulted in complete analgesia subsequently.

The second tonsillectomy was a typical case which made us realize that the supplementary administration of sedative is effective in acupuncture anesthesia. This young woman was so apprehensive on the operation chair, as to break out in a cold sweat and begin gasping and then, with a pale face, to faint. Therefore, 7 mg of diazepam was injected intravenously, which resulted in calm status without going asleep.

The operation was accomplished smoothly thereafter. To enhance the effect of acupuncture anesthesia, the administration of these supplementary drugs is truly effective. In China, pethidine is mainly used for this purpose. It is said that if too much of a dose is given, the effect of acupuncture anesthesia decreases.

Eighteen cases of tooth extraction have been performed under acupuncture anesthesia. In these cases, no supplementary drugs were given because they were outpatients. Small doses of local anesthetics were, however, injected in seven cases as an adjuvant drug. It was noticed that the dose of local anesthetics used can be reduced to as little as one-fifth or one-tenth of the usual amount.

Interestingly enough, for laparotomy when a very small dose of local anesthetic is injected into epidural space prior to the acupuncture anesthesia, complete anesthesia is often observed. On the contrary, if a large dose of a local anesthetic is administered, anesthesia is not observed by acupuncture.

"Results of cases"

To evaluate the result of acupuncture anesthesia, a pain score system was established by us.

<table>
<thead>
<tr>
<th>Score</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>complete anesthesia</td>
</tr>
<tr>
<td>2</td>
<td>slight pain</td>
</tr>
<tr>
<td>3</td>
<td>moderate pain</td>
</tr>
<tr>
<td>4</td>
<td>a small dose of local anesthetic was combined or inhalation anesthesia was administered for a short duration.</td>
</tr>
<tr>
<td>5</td>
<td>Acupuncture anesthesia was abandoned.</td>
</tr>
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</table>

The results obtained by us are shown in Table 2.

Good results were recorded in tonsillectomy and sinus operations. The results in laparotomy were also relatively good. However, in minor operations such as tooth extraction, relatively poor results were obtained.

In laparotomy, since complete muscle relaxation is not obtainable, acupuncture anesthesia had to
be shifted to general anesthesia with an ample dose of relaxants because of the difficulty of the operative procedures in a few cases. However, in most of the lower abdominal operations of aged people or women, surgical manipulations were not very difficult even under acupuncture anesthesia (Figure 5). Four cesarian sections have been performed by us. Satisfactory results were obtained in three cases.

Summerizing 87 cases, the success rate is 81.4% when the cases ranked between scores 1 to 4 are defined as success, referring to the criteria in China. This success rate is not so much different from that of China.

In China, physicians say that the important point of success exists on the psychic stability of the patient. For this purpose, several days are spent by hospital personnel to obtain close rapport between patients and doctors and to elicit the patients’ independence and positive willing. Furthermore, an acupuncture test is to be done in order to treat for preoperative conditions, to eliminate anxiety, and to “settle” the adequate acupuncture points.

However, we had no time to do this with our patients. We only made a preoperative round, one day prior to the operation and got the patient’s consent explaining the advantages of acupuncture anesthesia.

Therefore, our results show that acupuncture anesthesia works actually even outside of China and the factor of suggestion is unexpectedly less important.

The advantages of acupuncture anesthesia are listed as follows: getting the patients cooperation during the operation, simpleness of the facilities, easiness of training, etc. These are, however, the same with local anesthesia. Therefore, the advantages which are superior to those of local anesthesia must be mentioned. First, the physiological function of the total body is normally maintained during the operation. That acupuncture anesthesia is superior to local anesthesia in this point. In China, patients are allowed to drink water or eat fruit during the operation. We imitated this in a few patients. It was recognized that vomiting or indigestion never occur and drinking water makes the patient very stable psychologically.

Continuous arterial blood pressure was recorded by us in a patient during vaginal hysterectomy (Figure 6). Blood pressure fluctuated during acupuncture anesthesia. Since pain was evoked by the
traction of tubes, general inhalation anesthesia with nitrous-oxide and halothane by mask was initiated for some minutes. Then, the blood pressure was stable. It is thought that this stability of blood pressure during general anesthesia was a specious appearance. The fluctuation of blood pressure during acupuncture anesthesia is the sensitive manifestation of normal adjustment of the physiological function against the encroachment of acupuncture anesthesia.

As another advantage of acupuncture anesthesia, quick healing and less painfulness of the surgical wound following the operation are indicated. These are well observed in the patients who received tooth extraction.

Acupuncture anesthesia is also good for patients who are sensitive to local anesthetics.

On the contrary, as to the disadvantages of acupuncture anesthesia, the following points are indicated:

1. Individual differences in effect, 2. Poor muscle relaxation, 3. Difficulty of removing the pain induced by visceral extraction, 4. Poor results in anesthetic effect on the lower half of the body.

To cover these disadvantages, utilization of supplementary drugs including local anesthetics is desirable. In fact, in China, not being restrained by the results of acupuncture anesthesia, available supplementary drugs are greatly utilized.

After all, acupuncture anesthesia originated in circumstances where the popularization of modern anesthesia was restricted. In other countries, the circumstances of which are not as same as China, the utility value of acupuncture anesthesia is limited to special cases.

Recently, we are studying acupuncture anesthesia to utilize for the treatment of incurable painful diseases. Acupuncture which has so developed as to remove the pain induced by operative procedures, might be used as one effective method to treat various kinds of other pain.

Acupuncture treatments like acupuncture anesthesia were performed particularly on those patients who did not respond to either nerve block or conventional acupuncture treatments.

The results so far obtained are listed in Table 3. In these subjects, trigeminal neuralgia, post-herpes neuralgia and or various extremity pains are included. Among these patients, pain is relieved only during acupuncture anesthesia and returns after the treatment. The follow-up results are not necessarily excellent in all cases. However, the fact that excellent results could be obtained by acupuncture anesthesia in some cases in which relief of pain could not have been achieved by conventional methods is significant in that one new effective weapon against pain was given into our hands.

Table 3.