Introduction

Acupuncture is being increasingly adapted for use in Western medical clinics. The use of acupuncture in medicine is being promoted by organisations such as the British Medical Acupuncture Society, and as a result of demand by patients. However, there is still a vast amount of prejudice with regard to acupuncture and techniques regarded as ‘complementary' to traditional Western medicine. Because the mechanisms of action are not fully understood in physiological terms, the treatments are considered by many clinicians to be of no value. However, there is increasing evidence to support the use of acupuncture in medicine, including obstetrics and gynaecology. The various uses of acupuncture in obstetric and gynaecological practice are discussed in this paper in the hope that some interest will be stimulated in this fertile area for future research.

Definition and history

The term ‘acupuncture’ is derived from the Latin acus, a needle, and punctura, a puncture. It is an ancient system of diagnosis and treatment dating back some 4000 years to the discovery in China that the stimulation of certain points on the surface of the body affects the function of certain organs. These points are not scattered arbitrarily over the body, but follow a predictable and unchanging pattern, which can be used to diagnose involvement of an organ by disease. The line that can be drawn linking the points associated with any particular organ is known as a meridian.

Chinese medicine is an independent system of thought and practice that has been developed over centuries. Based on ancient texts, it is the result of a continuous process of critical thinking as well as extensive clinical observation. Rooted in philosophy and logic, it has developed its own perception of the body, and of health and disease. The Chinese method is holistic, based on the concept that no single part can be understood except in relation to the whole. Fundamental to the concept of Chinese medicine is the idea of balance and harmony. Energy, or qi (pronounced chee), flows through the body from meridian to meridian. Pain and disease occur when there is a blockage in the flow of the qi. The body should be treated as an entity and attention should be paid to maintain the body in harmonious balance within, and in relation to, its external environment.

There are 12 meridians relating to various organs, such as the heart, bladder, kidney, lungs, etc. and also organs not recognised within Western medicine, such as the ‘triple heater'. It is important to understand that the Chinese definition of an organ differs from that in the West. To the Chinese, an organ comprises not only an organic structure but also its entire functional system. Acupuncture points (365 in number) lie along the meridians and it is at these points that needles are inserted, usually four to six, and usually left in place for 15 to 20 minutes. The depth to which the needles are inserted varies according to the position on the body. A thorough understanding of surface anatomy is essential to be able to locate acupuncture points precisely.

Of course, a placebo effect does exist in acupuncture, as it does in conventional forms of medicine. However, controlled studies have been conducted in which groups of patients treated with needles on the appropriate acupuncture points have been found to respond far better than those on whom needles were used at random. Acupuncture is complementary rather than antithetical to Western medicine and the two can work well together and improve each other. In China a very close and mutually beneficial integration has long been established between the two systems.

Acupuncture during pregnancy

Acupuncture is becoming more readily available in the UK. In some hospitals the service is offered alongside traditional hospital practice, treating pregnant and postnatal women, who receive treatment from as early as six weeks of gestation until six weeks postnatally. Acupuncture is, in theory, ideal for childbirth. Being ‘drug-free' and therefore having no harmful teratogenic effects, women may feel happier about receiving this type of treatment in their pregnancy. For many years obstetricians and midwives have felt frustrated at not being able to offer women effective treatment for the minor ailments of pregnancy, which for some women may be far from minor. Acupuncture has been used to treat morning sickness, carpal tunnel syndrome, headaches, migraine, backache, sciatica, breast soreness, discomfort due to sinus conditions, oedema, varicose veins, vulval varicosities, haemorrhoids, indigestion, heartburn, abdominal pain, constipation, diarrhoea, etc.
hyperemesis gravidarum, anaemia and hypertension. Acupuncture can also be used to aid in the correction of malpresentation, induction of labour and pain relief in labour\textsuperscript{2,4}. Acupuncture can also be used postnatally to treat perineal pain, breast engorgement, mastitis, postnatal depression and insufficient lactation\textsuperscript{2,2}.

**Moxibustion and correction of breech presentation**

In fetal malpresentation a different technique is commonly used, stimulating acupuncture points by heat rather than by needles. Electro-acupuncture\textsuperscript{5} and auricular plaster therapy\textsuperscript{6} have also been used to induce cephalic version. Moxibustion is a traditional Chinese treatment, which uses the heat generated by burning herbal preparations containing the plant *Artemisia vulgaris* (mugwort; the Japanese name for it is moxa) to stimulate the acupuncture points. Various moxibustion techniques have been described, but the most common consists of lighting a moxa stick and bringing it close to the skin until it produces hyperaemia. The intensity of moxibustion is just below the threshold of pain and it does not cause burns. The woman usually sits down for the treatment. Two moxa-sticks, each the size of a thumb and 20cm long, are burned on the Zhiyin points of both feet. The Zhiyin point (67th or end point of the bladder meridian; BL67) is located in the vicinity of the outer proximal corner of the toenail of the fifth toe. Treatment sessions may last 15–20 minutes, once daily perhaps for several days. Women can be instructed in a clinical setting to undertake moxibustion therapy at home\textsuperscript{7,8}. A recent randomised trial has shown that moxibustion is more effective in bringing about cephalic version than in controls.\textsuperscript{8} It is postulated that moxibustion causes a cascade of biochemical events: increased adrenocortical activity, increased oestrial production by the feto-placental unit, and an increase in the ratio of prostaglandin F\textsubscript{20} to prostaglandin E\textsubscript{2}. In turn this raises uterine basal tone and increases contractility. This stimulates fetal movements and makes spontaneous version more likely. The increase in fetal movements and fetal heart rate is one of the most striking effects of moxibustion; the increased movements are perceived by almost all women towards the second half of the stimulation period and persist even after the end of stimulation. Stimulation performed in cases of intrauterine fetal death fail to produce version. This clarifies that this type of version relies on active fetal participation and any explanation based purely on a reflex action of moxibustion acupuncture mediated by a dermatone must be ruled out.\textsuperscript{9}

Moxibustion is cheap, non-invasive, painless and well tolerated by women. No significant adverse effects on women or their infants have been observed. The technique is simple and could be taught to the couple and practised at home\textsuperscript{9,10}. The Cooperative Research Group on Moxibustion reported that 1841 of 2041 women (90.2\%) with a breech presentation given this treatment had spontaneous cephalic version\textsuperscript{10}. The success rate in the 880 women who were given the treatment after 34 weeks was 84.6\%. Eighty-six percent of the versions were achieved after one to four applications of moxibustion and the remaining 14\% after five to ten applications. There was no significant difference in the rates of success between primigravidae and multigravidae. The rate of version was higher in women with an average tension of the abdominal wall than in those with high or low tension.\textsuperscript{10}

**Electro-acupuncture for obstetric analgesia**

Electro-acupuncture was used successfully to achieve pain relief during labour. Martoudis and Christofides\textsuperscript{11} reported that only 24 of 168 women (14.3\%) treated by electro-acupuncture during the first or second stage of labour had no pain relief. A total of 192 acupuncture treatments were given. A 3–4Hz current from an electro-acupuncture device was applied to four acupuncture points, two on each side: the auricular points Shen Men and the point Hegu (L14) on both hands. Treatment for 20 minutes was considered sufficient. The average application–maximum effect interval was 40 minutes (range 10–80 minutes). The average duration of the analgesic effect was six hours (range 5.30 to seven hours). The method described was very simple, practical, cheap and safe for the woman and her infant. It could be learned very easily and practised satisfactorily by the obstetricians and midwives without specialised training in acupuncture. A study of sacral acupuncture for pain relief in labour in Nigerian women found that clinically adequate analgesia was produced in 19 of 30 women (63\%) included. The needles did not interfere with nursing or obstetric manoeuvres. However, the procedure was time consuming\textsuperscript{12}. It has also been reported that acupuncture reduced the need for other methods of analgesia in childbirth, and that 94\% of women stated that they would consider acupuncture for future deliveries.\textsuperscript{13}

**Acupuncture and induction of labour**

Many investigators have studied induction of labour using electro-acupuncture. In three studies, the majority of post-term pregnant women began labour during the treatment. However, none of these studies included control groups, and thus progression to labour was not necessarily related to the treatment\textsuperscript{14–16}. It was also shown that cervical maturation could possibly be improved if acupuncture sessions were carried out at the beginning of the 9th month of pregnancy.\textsuperscript{17} A controlled study assessed the effect on uterine contractions (monitored by cardiotocography) of transcutaneous electrical nerve stimulation applied at acupuncture points over four hours in post-term pregnant women. Twenty women were randomly assigned to either the application of a 30-Hz current to the points
‘spleen 6’ (lower leg) and ‘liver 3’ (dorsum of foot), or to placebo, where the equipment was attached but not activated. The frequency and strength of uterine contractions were recorded for one hour before stimulation and then for the final two hours of the four-hour test period. A significant increase in the frequency and strength of uterine contractions was found in the electrically stimulated women compared with the placebo group. Nonetheless, a greater increase in the frequency and intensity of contractions than obtained in this study would have to be reached, and sustained over a longer period, for delivery to occur. Electrical stimulation through acupuncture loci, if it is activating afferent nerve fibres, can initiate a number of physiological mechanisms, such as hormonal changes influenced through the ascending neuronal pathways to the hypothalamus, or reflex activation of autonomic efferent nerves to the uterus.

Electro-acupuncture in assisted reproduction

Effect on the pulsatility index

Successful in vitro fertilisation and embryo transfer demand optimal endometrial receptivity at the time of implantation. Blood flow impedance in the uterine arteries, measured as the pulsatility index using transvaginal ultrasonography with pulsed Doppler, has been considered valuable in assessing endometrial receptivity. It was found that a pulsatility index ≥3.0 at the time of embryo transfer could predict 35% of the failures to become pregnant. No significant difference was observed between the pulsatility index measured on the day of oocyte retrieval compared with the day of embryo transfer. This would allow prediction of non-receptive endometria earlier in the cycle. A prospective non-randomised study found that electro-acupuncture reduced the high uterine artery blood flow impedance in 10 infertile healthy women; the effect was thought to be mediated by the central inhibition of sympathetic activity. The vasodilatation effect of acupuncture may be caused by central sympathetic inhibition via the endorphin system, by stimulation of sensory nerve fibres which inhibit the sympathetic outflow at the spinal level, or by antidromic nerve impulses which release substance-P and calcitonin gene-related peptide from the peripheral nerve terminals.

As an analgesic during oocyte retrieval

The anaesthetic effect, during ultrasound-guided transvaginal oocyte aspiration, of a paracervical block using lignocaine in combination with either electro-acupuncture or intravenous alfentanil was assessed in a randomised multicentre controlled trial which included 150 women. Acupuncture points were selected in somatic segments according to the innervation of the ovary and uterus (T10–12, L1–2 and S2–4). Visual analogue scales were used to assess subjective experiences during oocyte aspiration, and factors important to the outcome of in vitro fertilisation were recorded. No differences in pain directly related to oocyte aspiration, adequacy of anaesthesia during oocyte aspiration, abdominal pain or degree of nausea were found between the two groups. Before oocyte aspiration, the level of stress was significantly higher in the electro-acupuncture group than in the alfentanil group, and the electro-acupuncture group experienced discomfort for a significantly longer period during oocyte aspiration. This was possibly because most of the women were unfamiliar with electro-acupuncture, since the majority of them reported that they had received adequate pain relief two hours after oocyte aspiration. No significant difference was found between the two groups in the mean number of oocytes retrieved, fertilisation rate or miscarriage rate. Compared with the alfentanil group, the electro-acupuncture group had a significantly higher implantation rate, pregnancy rate and ‘take home baby’ rate per embryo transfer. The authors suggested that electro-acupuncture may be a good alternative to conventional anaesthesia during oocyte aspiration. On one hand, alfentanil was found in the follicular fluid shortly after an intravenous injection, but it is not known whether opioids and sedatives adversely affect ovarian follicles, oocytes and the receptivity of the endometrium. On the other hand, electro-acupuncture is a pain relieving method that activates endogenous opioid systems and has few known adverse side effects.

Other uses and complications of acupuncture

It is worth noting that some studies showed favourable results with the use of point six (P6) acupressure techniques for relief of patients with nausea and vomiting during chemotherapy, dialysis and recovery from anaesthesia. The effectiveness of acupuncture at P6 in curing post-operative nausea and vomiting was also reported. P6 is located three fingerbreadths proximal to the crease of the wrist on the pericardium meridian, which runs up the middle of the inner aspect of both arms.

Drowsiness can occur during and after acupuncture, producing a potential risk if patients drive after treatment. Transmission of hepatitis B infection via acupuncture is well recognised, and the use of sterile, stainless steel, disposable needles is necessary. Incidences of needles snapping while in situ have also been reported. There have been some reports of pneumothorax due to pleural puncture and one fatality where the needle had penetrated the pericardium.

Conclusions

The World Health Organisation sees the wealth of information favouring acupuncture as undeniable evidence that
the therapy should be considered as an important component of primary health care, fully integrated with conventional medicine. Although many studies give encouraging results regarding the different uses of acupuncture in obstetrics and gynaecology, definitive conclusions about its effectiveness cannot be reached. Most of the studies were small and were not randomised trials. Doctors cannot, however, dismiss acupuncture without good evidence, and we must participate in randomised trials to compare acupuncture with conventional treatments.

For more information on acupuncture contact the British Medical Acupuncture Society, 12, Marbury House, Higher Whiteley, Warrington, Cheshire, WA4 4QW.

Ayman A.A. Ewies\textsuperscript{a}, K.S.J. Olah\textsuperscript{b}

\textsuperscript{a}Department of Obstetrics and Gynaecology, Clinical Sciences Building, Leicester University, UK

\textsuperscript{b}Department of Obstetrics and Gynaecology, Warwick General Hospital, UK

References