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Clinical implications of acupuncture applied in the therapy of women suffering from chronic pelvic inflammatory diseases

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ABSTRACT

Objective: To assess the effect of acupuncture therapy on pelvic pain complaints in female patients with chronic pelvic inflammatory disease (PID).
Design: Prospective longitudinal study.
Setting: Patients enrolled in the Specialistic Outpatient Clinics in Polish Mothers Memorial Hospital, Research Institute in Lódź, Poland.
Patient: Seventy three women aged 26–38 years suffering from chronic PID for at least 2 years, with ineffective pharmacological treatment in the past.
Interventions: Ten acupuncture procedures performed with the frequency of three per week in every female patient.
Main Outcome Measure: Pelvic pain intensification assessed with 10-point pain scales.
Results: During the acupuncture therapy a significant reduction in pelvic pain scores was observed in the PID group: from 4.81 points (±0.78) to 0.65 points (±1.15) measured with the visual analogue scale (p<0.0001), and from 4.82 points (±0.73) to 0.54 points (±1.14) evaluated with the numeration scale (p<0.0001).
Conclusion: Acupuncture effectively reduces pelvic pain complaints in female patients with chronic inflammatory states within pelvis minor.

Key words: pelvic pain, PID, acupuncture

INTRODUCTION

A phlogistic process is a complex reaction of organism to some injury factors, having extensive pathogenesis and heterogenous symptoms. Classical features of inflammatory reaction including reddening *(rubor)*, swelling *(tumor)*, increased body temperature *(calor)*, soreness *(dolor)* and dysfunction *(functio laesa)* are very well-known and fairly easy to diagnose[1].

Pelvic inflammatory disease (PID) refers to varying degrees of inflammation of the uterus, fallopian tubes and adjacent pelvic structures that is not associated with surgery or pregnancy. PID is commonly an ascending infection in which the pathogenic microorganisms spread from the cervix and vagina to the upper portions of the genital tract. Risk factors include young age, multiple sexual partners, and certain methods of contraception like intrauterine devices. Lower abdominal pain, usually bilateral, is the most common presenting symptom. Pain may be associated with abnormal vaginal discharge, abnormal uterine bleeding, dysuria, dyspareunia, nausea, vomitting, fever or other constitutional symptoms.

Tubal damage and scarring could result following important long-term complications such as recurrent

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disease, chronic pelvic pain, ectopic pregnancy and infertility. Women with a previous episode of PID are at increased risk for subsequent episodes, presumably because of impaired local host defences. The current epidemics of infertility and ectopic pregnancy could therefore be attributed to this important medical, social and economic problem. It is imperative to develop better diagnostic techniques and treatments that can prevent the long-term sequelae of this disease.

Unfortunately an early diagnosis does not signify a good therapeutic result. An acute inflammation state can easily turn into a chronic process. One such example which the gynaecologist encounters in his daily practise is the pathological states associated with PID[2,3]. According to the National Centre Health Statistics from the early nineties, cases of chronic pelvic inflammatory diseases are nine times more frequent than acute syndrome[4,5]. Thus, chronic inflammatory conditions pose a major health issue of increasing importance and severity[6]. More recently, one of the therapeutic modalities employed include acupuncture[7].

Based on our present knowledge about inflammatory conditions, it is now extensively becoming more recognised that PID involves the immune processes which include the complement system[8]. In our previous report we observed a significant rise in concentrations of C3 and C4 complement fractions during acupuncture therapy in women with chronic PID[9]. In the current investigation, we would like to evaluate the clinical implications of acupuncture therapy in women with PID with particular reference to its analgesic mode of action.

METHODS

The study group consisted of 73 women in the reproductive age group between 26–38 years (mean 29.52 ± 4.71), diagnosed as chronic PID. All the women in this study were recruited from the Specialist Outpatient Clinics in Polish Mother's Memorial Hospital, Research Institute in Lódź, Pland.

We have enrolled for this study only patients with chronic PID for 2 or more years and with history of its previous failed pharmacological treatment. Moreover, all patients presenting with neurological causes of pelvic pain were excluded from this study. A neurological opinion was sought in women presenting with PID. All cases had gynaecological examination with exfoliative cytology of uterine cervix, transvaginal ultrasonography, digital palpation of mammary glands, and some laboratory tests (white blood cell count, CRP, GOT, GPT, bilirubin, fasting serum glucose) conducted before commencing the trial.

Our therapy consisted of 10 acupuncture procedures performed with the frequency of three per week. Each procedure lasted about 20 minutes. Twelve needles in individual sets were used. The acupuncture procedures were carried out in the Acupuncture Office lying within the area of our Institute.

The selection of acupuncture points was done according to the analysis of the contemporary papers of Chinese authors[10,11,12] as well as to our own experiences[7,13,14].

We applied the following corporal acupuncture points: Cv 3 (Zhongji), Gv 4 (Mingmen), Gv 14 (Dazhui), Gv 20 (Baihui), Sp 2 (Dadu), Sp 6 (Sanyinjiao), Sp 9 (Yinlingquan), Li 4 (Hegu), Li 11 (Quchi), St 30 (Qichong), St 36 (Zusanli), K 3 (Taixi), K 5 (Shuiquan), TH 5 (Waiguan), Liv 2 (Xingjiang), UB 28 (Pangguangshu), UB 31 (Shangliao), UB 43 (Gaohuang) and P 6 (Neiguan). Before and after the study an assessment of peivic pain intensification was carried out with two separate pain scales. The first scale involved a numeration scale in which the patient selects one of 11 numbers: from 0, which means a lack of pain to 10 – meaning a maximum pain. The second scale – a visual analogue scale – creates a ten-centimetre segment on which every patient can mark a point according to intensity of pain experienced by her.

The subsequent statistical analysis utilized Shapiro-Wilk test, with a significance level $\alpha = 0.05$, followed by the Students t-test as well as Wilcoxon tests. The arithmetical mean, maximum, minimum and standard deviation were then calculated.

RESULTS

Having performed ten acupuncture procedures in each female patient (approximate duration of $3^1/_2$ weeks) we obtained a statistically significant reduction in pelvic pain scores assessed using both visual analogue and numeration scales: from 4.81 (±0.78) points to 0.65* (±1.14) points, and from 4.82 (±0.73) points to 0.54* (±1.43) points respectively, *p<0.0001. These results are presented in Table 1.

TABLE 1
Pelvic pain intensification during acupuncture treatment (in point values)

	Visual analogue scale		Numeration scale	
	T_0	T_1	T_0	T_1
Minimum	3.1	0	3	0
Maximum	6.49	5.4	6	5
Mean	4.81	0.65*	4.82	0.54*
Standard deviation	0.78	1.14	0.73	1.43

T_0 – before therapy T_1 – after therapy
*p<0.0001

DISCUSSION

Present epidemiological reports have highlighted the rapid increase in the number of hospitalised PID cases[5,15]. In Europe that upward trend was already observed in the early sixties[2,4,6].

Some recent studies have suggested that chronic PID is associated with hypoimmunity[16,17]. More recently many investigators have considered the possibility of applying acupuncture in the threrapy of female PID. This mode of treatment with its underlying simplicity and feasibility of the method, have led to the concept that acupuncture itself, influences a favourable immune response and could contribute to the reduction of these chronic phlogistic states[11,12,13,17].

Although acupuncture is increasingly used for the treatment of pain and other conditions, the rational basis underlying its use remains unclear[19]. Western medical experts have been inherently skeptical of acupuncture's therapeutic value. One reason is that it seems very unlikely that the simple act of inserting fine needles into tissue could elicit any effect at all, let alone wide-ranging and long-lasting therapeutic effects. Hypodermic needles are routinely used in Western medicine, and their insertion into the body is not considered therapeutic. Acupuncture needles are of a finer gauge than even the finest needles used for intradermal injections, and acupuncture rarely results in a single drop of blood being discharged.

What is not widely appreciated by nonacupuncturists, however, is that acupuncture typically involves manual needle manipulation after needle insertion. Manual needle manipulation consists of rapidly rotating (back-and-forth or one direction) and/or pistoning (up-and-down motion) of the needle. Needle manipulation can be brief (a few seconds), prolonged (several minutes), or intermittent depending on the clinical situation. Even when electrical stimulationis used (a relatively recent development in the history of acupuncture), a certain amount of manual needle manipulation is usually performed immediately after needle insertion[20].

Traditionally, manipulation is performed to elicit the characteristic reaction to acupuncture needling known as "de qi". De qi has a sensory component perceived by the patient as an ache or heaviness in the area surrounding the needle and a simultaneously occurring biomechanical component that can be perceived by the acupuncturist. We refer to this component as "needle grasp". During needle grasp, the acupuncturist feels as if the tissue is grasping the needle such that there is increased resistance to further motion of the manipulated needle[20]. This "tug" on the needle is classically described as "like a fish biting on a fishing line". Needle grasp can range from subtle to very strong, with pulling back on the needle resulting in visible tenting of the skin.

During acupuncture treatments, needle manipulation is used to elicit and enhance de qi, and de qi is used as feedback to confirm that the proper amount of needle stimulation has been used.

De qi is widely viewed as essential to acupuncture's therapeutic effectiveness[21]. Documentation of de qi has been used as a criterion for evaluating the adequacy of both manual and electrical acupuncture treatments in clinical trials[22,23]. Needle manipulation, de qi, and needle grasp, therefore, are potentially important components of acupuncture's therapeutic effect, yet the mechanisms underlying de qi and needle grasp are unknown. Indeed, one popular theory formulated to explain how acupuncture modulates pain is the neurohumoral hypothesis of acupuncture analgesia[24]. This theory states that the pain relieving properties of acupuncture are, in part, mediated by a cascade of endorphins and monoamines that are activated by stimulating de qi, a sensation of numbness and fullness. De qi is associated with the stimulation of A-delta afferents which set the cascade in motion.

In our experience, although PID includes the various inflammatory processes occurring within female small pelvis, acute adnexitis is mainly responsible for remote side effects leading to persistent pelvic pain complaints in PID women[7,17].

The publications dealing with the application of acupuncture in inflammatory conditions often refer to its influence on immune system and their results report favourable changes in serum concentrations of IgG, IgA, IgM, complement fractions, lysozyme or other immune parameters[14,18].

For example, Yang and Zeng highlighted the rapid increase (after 30 minutes) in IgA and IgG titres in blood serum during acupuncture. Studies carried out in the Beijing Medical School also indicated the stimulating action of acupuncture procedures on phagocytic function of white blood cells. The maximum phagocytic activity observed in their study was obtained between 12 – 24 hours[18].

Woźniak et al., applying acupuncture in the therapy of salpingooophoritis, obtained the rise in IgM, IgA and IgG titres in blood serum[17].

Beneficial immunological alterations during acupuncture treatment may also result in the

improvement of clinical status of PID women. In the present study therefore we attempted to evaluate changes in pain complaints during acupuncture therapy and it was observed that a significant alleviation of pelvic pain occurred in the study group.

We are of opinion that acupuncture could serve as a relatively cheap, feasible and safe therapeutic method with its due place in the therapy of chronic phlogistic states in the near future.

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