

## Effects of acupuncture in bronchial asthma: preliminary communication<sup>1</sup>

**P L R Dias** DOMS PhD

*Department of Physiology, University of Colombo, Sri Lanka*

**S Subramaniam** DA FFARCS

*Department of Anaesthetics, General Hospital, Colombo, Sri Lanka*

**N D W Lionel** FRCP

*Department of Pharmacology, University of Colombo, Sri Lanka*

---

**Summary:** Twenty patients randomly assigned to an experimental and a control group participated in a double blind study to assess the effectiveness of acupuncture in bronchial asthma, using the peak expiratory flow rate (PEFR) as an index of bronchial patency. All patients in the control group showed a significant improvement in their PEFR while only 3 patients in the treated group showed an improvement. A subjective improvement and a reduction in drug dosages were observed in both groups. It is concluded that acupuncture has a placebo effect in bronchial asthma.

### Introduction

Acupuncture has recently been used in the treatment of various diseases ranging from schizophrenia (Kane 1979) to migraine (Schnorrenberger 1979). Though there is a sound neurophysiological basis for the use of acupuncture in the relief of pain (Melzack & Wall 1965, Chang 1974, Chapman *et al.* 1977, Peng 1978), its actual benefit in reversing pathological processes of the body is doubtful.

There have been several reports on the use of acupuncture in the treatment of bronchial asthma (Ivanova 1975, Hosri 1976, Tashkin 1977, Berger 1977, Zamotaev 1978) but there is no information in the available literature as to a trial using nonspecific points as controls. Recent reports on the use of acupuncture have stressed the need for controlled studies to investigate its use in various diseases (Hogness 1973, Bonica 1974). A preliminary controlled trial was thus carried out to evaluate the effect of acupuncture in bronchial asthma.

### Patients and methods

This study was conducted at the acupuncture clinic of the General Hospital, Colombo, Sri Lanka, where acupuncture therapy is administered twice a week in the afternoon between 2 pm and 4 pm, each session lasting half an hour. The twenty patients who were selected for this trial all had a previous history of chronic bronchial asthma for varying periods of time (Table 1) and had been under treatment with Western drugs. These patients were referred to the acupuncture clinic by their family physicians on account of the poor response to Western drugs, and at the time of referral they were all receiving some form of medication to control their frequent attacks of bronchial asthma. There were no contraindications for inclusion in the trial.

Patients were randomly allocated to a treated group and a control group. The treated group received acupuncture therapy at traditional acupuncture points, which were Tiantu (Ren Channel No. 22 in the suprasternal notch), Dingchuan (Extra point 17, half an inch (1.2 cm) on either side of the spine of the seventh cervical vertebra) and Lieque (Lung channel No. 7, two inches (5 cm) proximal to the styloid process of the radius), while the control group received acupuncture treatment at placebo points. These nonspecific points chosen were

<sup>1</sup> Accepted 19 January 1982

Table 1. Patient characteristics

	Control group	Treated group
Number of patients	10	10
Males	6	5
Females	4	5
Age in years		
Range	18-69	24-73
Mean $\pm$ s.d.	40.2 $\pm$ 14.2	43 $\pm$ 16.1
Duration of complaint (years)		
Range	2-41	1-35
Mean $\pm$ s.d.	12.1 $\pm$ 11.6	12.8 $\pm$ 10.1
Duration of therapy (weeks)		
Range	1-4	2-6
Mean $\pm$ s.d.	2.7 $\pm$ 1.2	3.5 $\pm$ 1.5

Xuanli and Xuanlu, which are the gall bladder points 5 and 6 (in the temporal regions on the hair line) used for treating migraine. In both groups, acupuncture treatment consisted of the insertion of sterilized acupuncture needles into alcohol-cleansed sites of the body. A physician who had obtained a diploma in acupuncture from Peking performed the acupuncture and was the only person to know which patients were in the treated and control groups. Results of treatment were assessed by another who was unaware whether the patients were in the treated or control groups.

The peak expiratory flow rate (PEFR) was measured prior to the start of acupuncture therapy using a Wright's peak flow meter with the patient in the sitting position. The response to acupuncture therapy was evaluated at each visit by estimating the PEFR half an hour after each session, as it has been shown that the FEV<sub>1</sub> of asthmatics is improved half an hour after acupuncture (Wen & Chau 1973). Three measurements were recorded at each visit and the mean of these 3 readings was taken as the PEFR.

All patients in both the control and treated groups were on bronchodilator drugs prior to the start of acupuncture therapy but were requested to refrain from taking drugs which would interfere with the test for eight hours before attending the clinic. The subjective response to acupuncture therapy and the increase or decrease in drug dosage which prevented asthmatic attacks while the patient was under acupuncture therapy were recorded at each visit.

## Results

A conspicuous finding was that the PEFR in each of the patients in the control group was higher at the end of the course of acupuncture therapy than at the beginning (Table 2), and 8 patients in this group reported that they felt much better after the acupuncture. Only 3 patients in the treated group showed an improvement in their PEFR after acupuncture therapy, though 6 patients reported that they felt much better after the acupuncture therapy. Three patients in this group showed a marked deterioration in their PEFR after acupuncture therapy. These results indicate that the subjective feelings of asthmatics bear little relationship to the actual state of their airway function as measured by PEFR. In no group did the PEFR approach normal limits at the end of the course of treatment; however, 3 patients in the control group showed a PEFR of over 450 l/min, an improvement on the value before onset of therapy, while only one patient in the treated group showed a PEFR of over 450 l/min - a deterioration from an initial value of over 530 l/min.

In the control group 7 patients had reduced their drug intake at the end of acupuncture therapy, while the other 3 patients showed no change in their drug intake before and after treatment. No patients in this group showed an increase in their drug intake (Table 3). In the treated group 6 patients had reduced their drug intake at the end of the course of acupuncture therapy, but 4 patients had to increase their drug intake to prevent asthmatic attacks (Table 4).

Table 2. Effects of acupuncture therapy on the peak expiratory flow rate

	Patient	PEFR before therapy (l/min)	PEFR after therapy (l/min)	% change in PEFR	No. of acupuncture sittings	Subjective feelings at end of therapy
Control group	1	430	455	+ 5.8	8	No improvement
	2	340	380	+11.8	4	Improved
	3	220	300	+36.4	8	Improved
	4	400	460	+15	4	Improved
	5	75	110	+46.7	6	Improved
	6	115	160	+39.1	6	Improved
	7	170	195	+14.7	6	Improved
	8	290	450	+55.2	6	No improvement
	9	180	260	+33.3	2	Improved
	10	120	135	+12.5	4	Improved
Treated group	1	530	470	-11.3	6	Improved
	2	70	70	0	12	No improvement
	3	420	350	-16.7	8	Improved
	4	185	160	-13.5	12	No improvement
	5	210	190	-9.5	5	Improved
	6	205	200	-2.4	6	Improved
	7	160	195	+21.9	4	Improved
	8	155	60	-61.3	4	No improvement
	9	60	80	+33.3	6	Improved
	10	60	75	+25	10	No improvement

Table 3. Changes in drug dosages after acupuncture therapy

	Control group	Treated group
Number of patients	10	10
Drug dosage reduced	7	6
No change	3	Nil
Drug dosage increased	Nil	4

Table 4. Drug usage before and after therapy

Patient number	Control group		Treated group	
	Before therapy	After therapy	Before therapy	After therapy
1	Franol 1 nocte	Franol 1 nocte	Ephedrine 1 bd	None
2	Ventolin 1 bd	None	Ephedrine 1 td	Ephedrine 1 bd
3	Ventolin 1 daily	None	Ephedrine 1 td	None
4	Ephedrine 1 nocte	None	Tedral 1 td	Tedral 2 td
5	Ephedrine 1 bd	Ephedrine 1 bd	Ventolin 1 daily	None
6	Franol 1 td	None	Franol 1 daily	Franol 1 td
7	Franol 1 daily	None	Franol 1 nocte	None
8	Ephedrine 1 daily	Ephedrine 1 daily	Ephedrine 1 nocte	Ephedrine 1 td
9	Ephedrine 1 td	None	Ephedrine 1 bd	None
10	Tedral 1 td	Tedral 1 nocte	Tedral 1 nocte	Tedral 1 td

Although patients in both groups showed a subjective improvement regarding a reduction in drug dosage schedules, a statistical analysis of the differences in the results of treated and control patients, on the basis of a one tailed *t*-test at a 0.01 level of significance, showed that the response to acupuncture therapy as determined by PEFR measurements was statistically more significant in the control group ( $P < 0.01$ ) who were treated using the nonspecific points than in those treated using the traditional points. This is in contrast to the observation made

by Berger & Nolte (1975) who found that placebo acupuncture did not change airway resistance.

### Discussion

The reason for the improved PEFR in the control group after acupuncture therapy is difficult to explain. Our results seem to indicate that the exact point of acupuncture is of no significance and that asthmatics tend to show an improvement not only in their PEFR but also with regard to a reduction in drug dosages when needles are placed at some distant arbitrary point. Since it appears that the site of needle placement is of no significant value, a placebo effect must be considered.

Recent widespread publicity in the media about the alleged effectiveness of acupuncture may be a contributory factor providing a favourable response in patients of both groups; Fuller (1974) observed that some degree of autosuggestion and faith was essential for the success of acupuncture. There is no doubt regarding the interrelationship between the psyche and asthma, as is shown in the study by Collison (1975). The possibility that an improvement might be due to the natural course of the disease or to the breathing exercises given to all patients in this study should also be borne in mind when evaluating the effectiveness of acupuncture. It must be stressed that our results are those of a short-term follow up; a long-term follow up of these patients is planned to determine whether the subjective improvement, the reduction in drug dosages and the alterations in PEFR are being maintained. These long-term studies are important because it has been shown that acupuncture has no effect on the underlying pathological process (McLeod *et al.* 1974, Carroll 1975, Felser 1975).

*Acknowledgment:* The authors wish to acknowledge financial support from the University of Colombo, Sri Lanka.

### References

- Berger D (1977) *Comparative Medicine Eastern and Western* 5, 265–269  
 Berger D & Nolte D (1975) *Medizinische Klinik* 70, 1827–1829  
 Bonica J J (1974) *Journal of the American Medical Association* 228, 1544–1549  
 Carroll R L (1975) *Medical Journal of Australia* i, 795  
 Chang H-T (1974) *American Journal of Chinese Medicine* 2, 1–40  
 Chapman C R, Chen A C & Bonica J J (1977) *Pain* 3, 213–217  
 Collison D R (1975) *Medical Journal of Australia* i, 776  
 Felser E (1975) *Medical Journal of Australia* ii, 152  
 Fuller J A (1974) *Medical Journal of Australia* ii, 340  
 Hogness J R (1973) Report of the Medical Delegation to the Peoples Republic of China. National Academy of Sciences, Institute of Medicine, Washington DC  
 Hosri C M (1976) *Journal of the American Society of Psychosomatic Dentistry and Medicine* 23, 3–16  
 Ivanova L N (1975) *Pediatrics* 10, 46–47  
 Kane J (1979) *American Journal of Psychiatry* 136, 297–302  
 McLeod J G, Joseph D & Sainsbury M J (1974) *Medical Journal of Australia* i, 237  
 Melzack R & Wall P D (1965) *Science* 150, 971–979  
 Peng C H (1978) *Comparative Medicine Eastern and Western* 6, 57–60  
 Schnorrenberger C C (1979) *Medizinische Welt* 30, 425–428  
 Tashkin D P (1977) *Annals of Allergy* 39, 379–388  
 Wen H L & Chau K (1973) *Asian Medical Journal* 9, 191–196  
 Zamotaev I P (1978) *Terapevticheskii Arkhiv* 50, 89–91