

Does Acupuncture Work in Asthma?*

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Acupuncture was first described in detail in the Chinese book, *Huangdi Nei Jing*, compiled during the Warring States Period (475-221 B.C.).¹ Since then it has been widely used (and also misused) for treating many diseases. Recently it has achieved prominence because acupuncture is described as being safe, cheap and effective. Furthermore, it provides an alternative if Western medicine fails. One of the diseases often claimed to be responsive to acupuncture is bronchial asthma.¹ In this article, we attempt to analyse the data on the effects of acupuncture on asthma so as to determine whether the claim is justified or not. In our analysis, we have specifically omitted those studies which reported only subjective improvement without objective data using spirometry, because subjective improvement is deceptive in a disease which can be strongly influenced by suggestion alone.²

Does acupuncture cause bronchial dilatation?

(a) In patients with stable asthma

Berger and Nolte³ studied 12 patients undergoing acupuncture with manual stimulation for 20 minutes at nine specific loci on the trunk of their bodies. They found that nine of the 12 (75% of the total) had a decrease in airway resistance of 24.1 per cent at 10 minutes and 27.4 per cent at 2 hours. Placebo-acupuncture did not significantly

change airway resistance. Chow *et al*⁴ studied 16 young asthmatics and found that auricular acupuncture over the lung loci with manual stimulation for 10 minutes did not change forced expiratory volume in one second (FEV₁) or maximal flows at 50 per cent and 25 per cent of vital capacity (\dot{V}_{50} and \dot{V}_{25}) 10 minutes post-acupuncture. This would suggest that acupuncture, using trunk loci, is more effective than acupuncture, using auricular loci, in reducing the bronchomotor tone of stable asthmatics.

(b) In patients with acute severe asthma

Wen and Chau⁵ used auricular acupuncture with electro-stimulation for 0.5-1 hour in six patients with status asthmaticus and found that the mean FEV₁ increased by 43.9 per cent. The response could be seen within minutes and might last for 24 hours. However, no placebo-acupuncture was done and the study was not "double-blind". Yu and Lee⁶ studied 20 patients during attacks; the mean FEV₁ increased by 58 per cent 10-20 minutes following acupuncture over specific loci (Din Chuan) with manual stimulation for 10 minutes. Placebo-acupuncture was ineffective. This study demonstrated convincingly that acupuncture, when correctly applied, did cause significant bronchodilatation. However the bronchodilatation after acupuncture was not as great as that after inhalation

of isoprenaline⁶ or ipratopium bromide.³ Also, patients who had responded to acupuncture maximally were not refractory to the usual bronchodilators.⁶

Does acupuncture prevent asthmatic attacks?

(a) In experimental asthma

Tashkin and his associates⁷ found that manual stimulation of six specific acupuncture loci for 15 minutes partially protected 12 asthmatics against methacholine-induced bronchoconstriction. Since methacholine acts only upon airway smooth muscles directly, this suggests that acupuncture may influence smooth muscles directly. Yu and Lee⁶ found that manual stimulation of Din Chuan loci alone did not prevent histamine-induced bronchoconstriction. This is not surprising since histamine induces bronchoconstriction by direct action on smooth muscles and also indirectly through vagal reflex stimulation. Chow *et al*⁴ found that auricular acupuncture did not offer protection against exercise-induced asthma,⁴ suggesting that acupuncture probably did not influence mediator release from mast cells.

In summary, acupuncture has a rather weak prophylactic value in experimental asthma.

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(b) In clinical asthma

Dias *et al*⁸ administered acupuncture over three specific loci for 30 minutes twice weekly for 2-6 weeks in 10 asthmatics; they found only three patients had an improvement in their peak flow rate (PFR) at the end of the course of acupuncture. More importantly, the mean PFR of the treated group fell by 3.45 per cent after acupuncture prophylaxis, whereas the mean PFR of the control group with placebo-acupuncture rose by 27.05 per cent. Four patients in the treated group actually had to increase their bronchodilator intake during the course of treatment whereas none in the control group showed an increase in drug intake. This short-term study clearly showed that acupuncture was ineffective in preventing asthma.

How does acupuncture work?

It is now known that acupuncture relieves pain by increasing the cerebral release of endorphins since the analgesic effect can be blocked by naloxone.⁹ Endorphins, like morphine, may cause bronchoconstriction through histamine release; hence release of endorphins cannot explain the bronchodilator action of acupuncture. Kim¹⁰ suggested that acupuncture caused local mediator release which would then stimulate the autonomic centre and hypothalamus via humoral or reflex routes; however, no supporting evidence was given. An increase of endogenous steroid following acupuncture had been demonstrated and this might explain

its bronchodilator effect.¹¹ However, the effect of steroid is usually delayed for 4-6 hours; thus, this would not explain the immediate action of acupuncture. Since acupuncture was shown to be ineffective in preventing histamine- and exercise-induced bronchoconstriction, but might partially protect against methacholine-induced asthma, this would suggest that acupuncture probably acts directly upon smooth muscles, and not through mast cells or the vagal reflex. The exact mechanism is not known and deserves further study.

Is acupuncture safe?

It is known that acupuncture needles may transmit viral hepatitis when they are not properly sterilized. Also, bilateral pneumothoraces may be produced after acupuncture since the specific "Din Chuan" loci for asthma are located at the back.¹² When properly done, acupuncture is usually safe.

Summary

A review of the effects of acupuncture on asthma was made using studies with spirometry data. It was found that although acupuncture causes bronchodilatation, it is a less effective treatment than conventional Western medicine. It partially prevents methacholine-induced bronchoconstriction, but not against histamine- or exercise-induced asthma. When used over several weeks, it has no prophylactic value. Preliminary data suggest that acupuncture probably does not

affect mast cells or vagal reflex, but acts directly upon smooth muscles of airway

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