

Allergy to heroin

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A patient with allergic asthma and urticaria due to heroin powder is reported, and details of bronchial provocation and other related tests are discussed.

Key words: allergy; asthma; heroin; urticaria.

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Over the past few years, addiction to heroin and its adulterated street form, brown sugar, has been on the increase in India (5). As yet, there have been no reports in this country of allergic reactions to heroin, and to the best of my knowledge such reactions have not been included as a known form of allergy in medical literature from other countries (2, 3, 4, 7).

CASE REPORT

A 45-year-old non-smoking man was admitted to hospital with a history of episodic asthma and urticaria following contact with heroin/brown sugar. A drug peddler by occupation, he had to frequently sniff or taste heroin to determine its purity and quality, following which he would develop symptoms within a few minutes of exposure. His past medical history and family history were negative for atopic disease and he was asymptomatic when not in contact with heroin/brown sugar. No abnormal findings were noted on physical examination.

Laboratory evaluation revealed a normal haemoglobin and white cell count. His chest X-ray and electrocardiogram were normal, and serum IgE level (by the ELISA method) was 130 IU/ml (normal range 10 to 200 IU/ml).

Having obtained his basic pulmonary function values, the patient was subjected to a bronchial provocation test (BPT) using extracts of pure heroin powder. Extracts of 1:5000 weight/

volume (w/v), 1:1000 w/v, 1:500 w/v, 1:100 w/v and 1:10 w/v were obtained using Coca's solution.

A Devilbiss nebulizer was used to deliver the heroin extract and the patient was asked to inhale the nebulized solution for 1 min. Ten minutes after the inhalation, the patient's pulmonary functions were repeated and compared with the basal values. It was noted that there was no change in pulmonary functions on challenging the patient with extracts of 1:5000 w/v, 1:1000 w/v and 1:500 w/v, but when challenged with an extract of 1:100 w/v, his FEV₁ values dropped by almost 34% from basal values.

It was also noted that the patient had become dyspneic and had marked bronchospasm on auscultation. Bronchospasm was relieved by subcutaneous administration of 0.5 ml 1:1000 adrenaline. The patient was closely observed for development of late reaction but none occurred. Specific IgE levels to heroin could not be estimated because of lack of facilities. A skin prick test (SPT) with heroin antigen 1:10 w/v was read after 15 min and gave a weal of 15 mm diameter, while negative control saline gave 0 mm and positive control histamine 5 mm. Bronchial provocation tests to brown sugar were not performed, although brown sugar SPT produced a 12 mm reaction.

The patient was prescribed a sodium cromoglycate inhaler (1 mg/metered inhalation), two puffs four times daily. Three months later,

Table 1
Pulmonary function values

	Predicted values	Before bronchial provocation	After bronchial provocation
FVC	3.44 l	3.38 l	3.0 l
FEV ₁	2.80 l	2.86 l	1.89 l
FEV ₁ /FVC %	81.4%	84.6%	63%
PEF	500 l/min	520 l/min	300 l/min

with the inhaler in continuous use, the patient was subjected to a repeat bronchial provocation test with extracts of pure heroin, which was negative to all extracts up to 1:50 w/v. After discontinuing the inhaler for 1 week, the BPT was repeated and found positive, with results similar to those obtained 3 months earlier (a fall in FEV₁ of 32 % from basal values).

DISCUSSION

In normal people therapeutic doses of opioids (e.g. heroin and morphine) are known to cause dilatation of cutaneous blood vessels accompanied by flushing, warmth, pruritus and even urticaria. These changes may in part be due to the release of histamine (3); however, a more complicated mechanism may be involved since the itching outlasts the likely period of histamine release (1). There is mounting evidence that a central, enkephalinergic mechanism is responsible for these opioid reactions (9). It is also known that large doses of opioids can produce bronchoconstriction in normal persons, although this effect is rarely seen after therapeutic doses (3). Sodium cromoglycate attenuates both the early and late asthmatic response to allergens, but is also known to relieve non-allergic asthma (1, 8).

The amount of opioid (heroin in the present case) introduced during prick testing and bronchial provocation is far below therapeutic levels.

It may, therefore, be safely deduced that the clinical presentation, positive SPT, strongly positive BPT and attenuation of the bronchial provocation with sodium cromoglycate, indicate an allergy to heroin. Since the patient showed reactivity to pure heroin, it is unlikely that his symptoms were caused by adulterants in brown sugar. Unfortunately, because of lack of facilities we were unable to determine the patient's specific IgE levels to heroin.

Finally, there has been a report of atopic dermatitis/urticaria in workers manufacturing morphine (6). However, an extensive review of literature revealed no such reported allergy to heroin.

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