

Chronic asthma and improvement with relaxation induced by hypnotherapy

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Summary

Sixteen chronic asthmatic patients inadequately controlled by drugs had, after one year of hypnotherapy, a fall in admissions from 44 in the year before starting therapy to 13 in the year after. Duration of stay was reduced for 13 patients by 249 days; prednisolone was withdrawn in 6, reduced in 8 and increased in none. Side effects of drugs were reduced. Although 62% reported improvement on a visual analogue scale, observations of air flow gave variable results.

Introduction

Following a controlled trial of hypnotherapy for asthma in 1968 for the British Tuberculosis Association¹ an Editorial² in the *British Medical Journal* expressed the hope 'that more physicians will be encouraged to explore its possibilities'. This has not happened and a *Hospital Doctor* Editorial³ in 1986 remarked 'it is surely extraordinary that a technique with such potential should attract so little research'. Maher-Loughnan *et al.*⁴ reported encouraging results in a controlled trial of 62 patients with reduced use of drugs and more days without wheezing. In 1976 I found that after hypnotherapy 9 of 33 asthmatics ceased oral or injected steroids and admissions fell with 24 patients having no admissions compared to 7 patients before its use⁵. Suggestion can influence airway calibre in some subjects^{6,7}. Sato *et al.*⁸ report that suggestion can alter certain physiological variables and blunts the hypercapnic response to CO₂. Knapp and Mathé⁹ in a comprehensive review indicate that behavioural approaches, operant conditioning, biofeedback and hypnosis influence the course of acute and chronic asthma, alter lung function tests and modify drug treatment. Our aim was to investigate the role of relaxation induced by hypnosis in chronic asthma not responding satisfactorily to drug therapy. A controlled trial was not appropriate in this chronic difficult group often on drugs for many years. Dudley¹⁰ remarked 'that prospective randomized trials may damage individuals or fail to resolve the issue they address - is not usually considered'.

Methods

Sixteen patients, 10 referred by consultants, having had asthma for between 2 and 44 years were offered hypnotherapy after explanation of its usefulness and a suggestibility test. The test involved the patient stretching out the arms with the dominant hand upwards and the other downwards and at the same level. Whilst trying to maintain this position he/she was asked to visualize a heavy book on the dominant hand and a cord pulling upwards on the opposite

wrist. The hands would separate and on opening the eyes surprise was usually registered at this. Hypnosis could be induced by having the patient visualize the heavy book on the dominant hand with eyes closed and as it sank to the underlying thigh and touched it suggestions of muscle relaxation and drowsiness were given. Some patients produced marked flaccidity of the limbs and breathing slowed and deepened. Hartland's ego strengthening routine¹¹, a method of boosting the patient's confidence by the use of positive suggestions, was employed and the patient told that as relaxation occurred chest tightness and wheezing could improve. Instruction was given in autohypnosis to induce relaxation daily for 5-15 min and if this was difficult a tape recording was made. Some patients used the method more than once daily. They were told to use it at times of mild to moderate wheezing either alone or after a B₂ stimulant inhaler but never in the event of a severe asthmatic attack.

Each patient was asked to record peak flow 4 times daily using the best of 3 readings before and after inhaled salbutamol and also once daily before and after hypnotherapy induced 2 hours after a dose of salbutamol. Asthma diary cards to record daily cough, sputum and wheezing plus all drugs used were provided. Clinic visits were made weekly for 2-3 weeks then at 2, 3 and 4 weeks according to progress. The first visit might take one hour, but later visits were for 10-15 minutes and usually a reinforcing session of hypnotherapy was given. Eleven patients had pneumotachograph studies done at one visit, before, during and after hypnosis during quiet breathing and also during 3 minutes of hyperventilation. At each visit peak flow, FEV₁ and FVC were recorded (one hospital recorded only peak flow in 4 patients). As observations increased it was noted that some patients could produce a significant increase in peak flow with either salbutamol or hypnotherapy and a subgroup of 6 most consistent in their daily records were studied. This gave 3699 recordings for analysis. Assessment of the effect of therapy was obtained using a visual analogue scale from -5=worse to +5=excellent response. Frequency of admissions and duration of stay in the year before hypnotherapy and in the year after were recorded and for patients observed over several years all known admissions before and after hypnotherapy.

Results

Seven male and 9 female patients aged 14-64 years were observed between 1 and 7½ years. Duration of asthma was from 2 to 5 years in 4 and 10 to 44 years in 12. Atopy was present in 15 and 10 had a positive family history, 14 positive skin tests and 6 eosinophilia with raised IgE levels. All 16 stated that infection or

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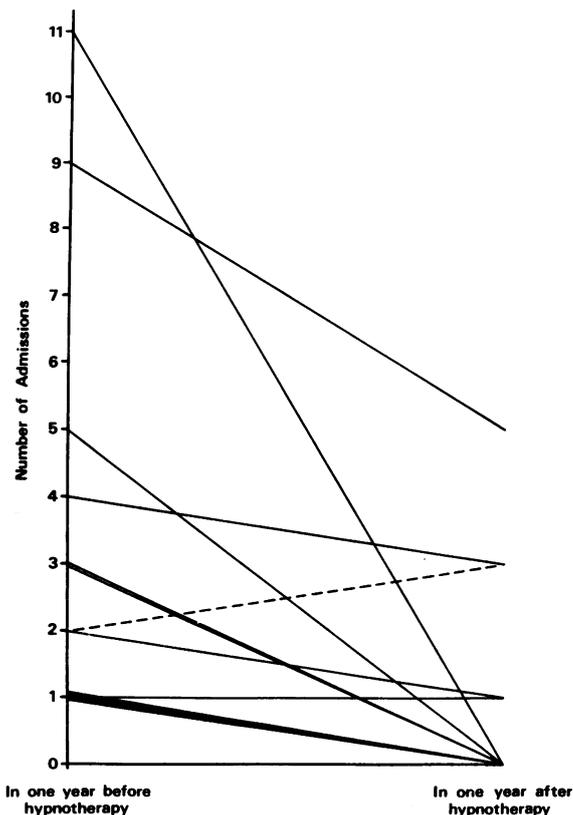


Figure 1. Change in admissions during one year before and after hypnotherapy (13 patients)

emotional factors could trigger asthma. Admissions in the year before and year after hypnotherapy are shown in Figure 1. Of 3 patients having no admissions in those years, one had an admission 4 years and 7 months after starting hypnotherapy. Of the remaining 13 patients admissions fell from 44 to 13, a mean of 3.3 to 1 per patient. Duration of stay fell from 501 to 72 days (Figure 2). Reviewing all admissions in the

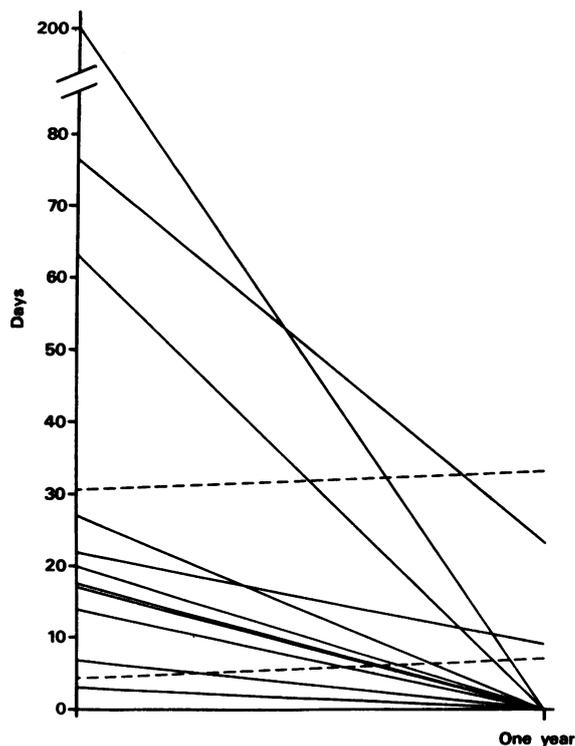


Figure 2. Change in duration of hospital stay over one year after hypnotherapy (13 patients)

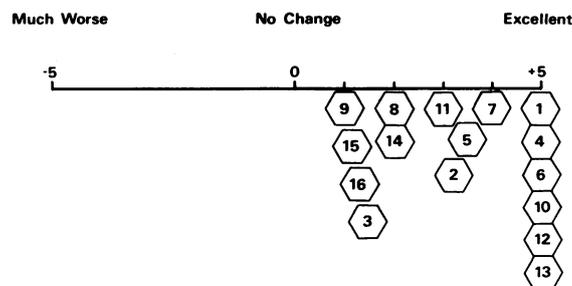


Figure 3. Assessment of effect of hypnotherapy by the patient

years before and after hypnotherapy there was a fall from 98 to 26 but a comparison was not valid as it was impossible to account for all admissions in those who had suffered many years of asthma sometimes from childhood. Only 1 patient had not been given oral steroids and duration of this therapy varied from 5 weeks to 15 years. Nine were continuously on such treatment when first seen and 6 on intermittent courses. The mean duration of treatment was 6 years but 6 patients had taken prednisolone for over 10 years and 7 for 5-10 years. Fourteen showed drug induced cushingoid changes. Drug dosage varied much and was supplemented by a B₂ stimulant inhaler in all patients. Fourteen patients were taking an inhaled steroid, 4 used inhaled ipratropium bromide (Atrovent); 15 used an oral aminophylline preparation. After hypnotherapy 6 ceased oral steroids and 8 reduced their dose. Of 3 patients who had stopped prednisolone, 2 had two further courses and the third, one course; their duration varied from 4 days to 4 weeks. Inhaled B₂ stimulant dosage was reduced in 9 patients by a maximum of 20 doses of 2 puffs to a minimum of 1 dose daily. Figure 3 shows that 6 patients rated their improvement as excellent and 10 at over 50%. There was no correlation between this and peak flow, FEV₁ and FVC. Significant improvements in peak flow, FEV₁ and FVC after hypnotherapy in clinic were observed but were not always reproducible. Peak flow was observed at times to increase after hypnotherapy at home in 14 patients but the changes were variable as also occurred after inhaled salbutamol, not always reaching a significant increase of 20%. Two patients from the subgroup of the 6 most conscientious in recording peak flow are

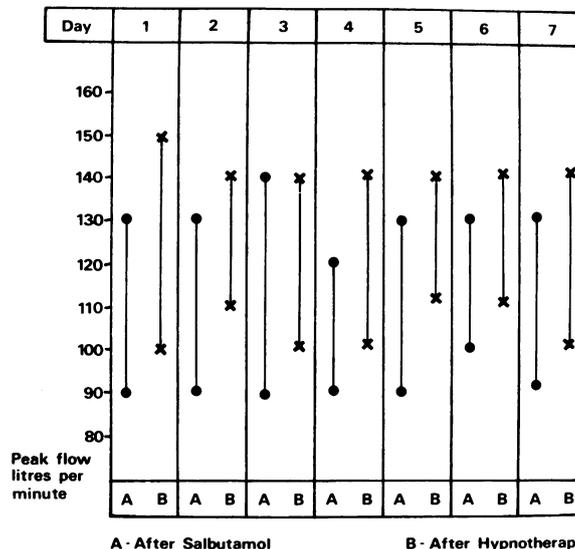


Figure 4. Increase in peak flow in patient E O'H for one week

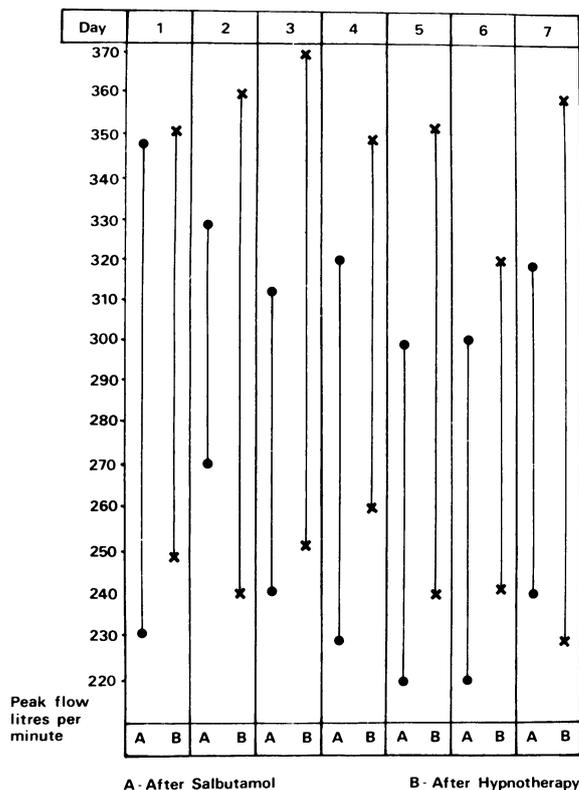


Figure 5. Increase in peak flow in patient CL for one week

of interest. A female of 55 years severely disabled after 40 years of asthma failed to reach a 20% increase in peak flow on only 5% of readings after salbutamol or hypnotherapy (11/242 in each case). Her peak flow increased equally well or better after hypnotherapy as after salbutamol. Figure 4 illustrates this for one week. In a male of 55 years with asthmatic history of 22 years, failure to reach a 20% increase occurred in 33% of readings (234/699) after 2 puffs of salbutamol but only on 10% of readings (25/144) after 10 min hypnotherapy (Figure 5).

Observations by pneumotachograph in 11 patients showed that frequency of breathing decreased in 10 during quiet breathing in hypnosis ($P < 0.01$) and in 8 during hyperventilation in hypnosis ($P < 0.05$). Tidal volume increased in 8 during quiet breathing in hypnosis and in 5 during voluntary hyperventilation in hypnosis (NS). Minute ventilation was reduced in 7 during quiet breathing (NS) and in 10 during voluntary hyperventilation in hypnosis ($P < 0.05$). Thus hypnotherapy can affect the pattern of breathing in some patients.

Discussion

This study confirms my previous observation⁵ that even in intractable asthma, hypnotherapy reduced hospital admissions and drug therapy. Subjective improvement was appreciated by patients although lung function tests did not correlate well with this. Nagarantha and Nagendra¹² noted similar improvements using yoga in 53 patients. Rackemann and Edwards¹³ state that psychogenic factors play a part in every case of asthma. How they operate is not known nor is the action of hypnotherapy. In 4 children Feldman¹⁴ found that total respiratory resistance was reduced by biofeedback due to changes in the lower airways. Thus different methods of inducing relaxation can have beneficial effects. Sterling¹⁵ found that hyperventilation could cause significant

bronchoconstriction even in normal subjects. It frequently occurs in asthmatics and emotion may trigger it, just as it may trigger sudden changes in the nasal passages, throat and chest as described by MacKenzie¹⁶ in 1886 in an asthmatic patient shown an artificial rose. Dekker and Groen¹⁷ reported 23 psychological triggers in 12 patients. McFadden *et al.*¹⁸ demonstrated that 19 out of 40 asthmatics inhaling normal saline but believing it was a bronchoconstrictor substance had significant increases in airway resistance and 12 of these had an asthmatic attack. All were successfully treated using saline as a placebo. Intravenous atropine could block the parasympathetic response and Simonson *et al.*¹⁹ have shown that atropine blockade reverses the bronchoconstriction induced by aerosols of citric acid or histamine phosphate. Neild and Cameron⁷ confirmed McFadden's observations on the effect of suggestion and Sinclair-Gieben's report²⁰ of improvement after hypnosis in a male patient apparently dying from asthma unresponsive to drugs, indicates the positive value of suggestion. Possibly in hypnosis there is parasympathetic inhibition.

Galvanic skin resistance can be measured during hypnosis by a simple biofeedback device, a Relaxometer, which emits an audible signal. Skin resistance increases in hypnosis and the signal pitch and volume falls. On rousing the patient this process is reversed and in children this may occur in 15–20 s showing rapid alteration in autonomic function as skin resistance falls. Thus one might question if, similarly, hypnosis induces rapid changes in airway resistance but the lack of response in peak flow, FEV₁ and FVC in some patients is difficult to explain. White²¹ reported that 6 of 10 patients obtained benefit from hypnosis but objective tests did not usually show improvement. Edwards²² noted a similar disparity. Our plethysmographic studies show that hypnosis usually produces a slower, deeper pattern of breathing with tidal volume increases, although minute ventilation may fall. Reduction of admissions after 1 year from 43 to 13 is important clinically and financially as is the reduction in use of drugs. One cannot state that these effects are necessarily due to hypnotherapy for the placebo effect of one doctor regularly seeing each patient may have been beneficial. However Zvi *et al.*²³ demonstrated that 10 stable asthmatics all responded to hypnosis in attenuating exercise induced asthma but only 3 got a placebo response. It seems not to be of importance what method of inducing relaxation is used whether it be hypnosis, biofeedback or yoga. Freeman *et al.*²⁴ found that hypnosis is of value not only for its relaxation effects in the hyperventilation syndrome but for its use in revealing repressed psychological triggers. Tandon²⁵, using yoga, showed that in patients with chronic bronchitis higher work loads could be achieved using a bicycle ergometer. A prospective, randomized, single blind and controlled trial of a hypnotic technique by Ewer and Stewart²⁶ showed that 12 of 39 patients produced a 74.9% improvement in bronchial hyper-responsiveness on methacholine challenge testing after a 6 week course of hypnotherapy. The inflammatory response is now considered to be of great importance in asthma. Professor D Ewing²⁷ showed photographs illustrating the ability of hypnosis to modify the inflammatory response in skin burns at an International Conference on Hypnotherapy at Glasgow University in 1982.

In deep trance subjects, Black²⁸ has shown that the Prausnitz-Küstner reaction can alter, resulting in inhibition of the allergic response. Thus hypnosis may be inhibiting the inflammatory and allergic responses in the airways. The beneficial response to hypnotherapy might also be effected through its influence on the Non Adrenergic Non Cholinergic (NANC) nervous system which Barnes²⁹ has postulated may be defective in asthma. The measurement of peptide mediators such as vasoactive intestinal polypeptide (VIP) during hypnosis might throw light on this for experimentally it relaxes airway smooth muscle.

Whatever the mechanisms involved further research is needed into the neurophysiological and biochemical changes occurring in hypnosis. Ewer and Stewart²⁶ indicate that hypnotherapy might benefit about half of the asthmatic population and Whorwell^{30,31} has already demonstrated a 100% success rate in classical irritable bowel syndrome in patients under 50 years of age. Simple suggestibility tests could identify those most likely to respond and, as techniques of hypnotherapy are not difficult to learn and need not be time consuming after the first session, it seems a useful addition to therapy in asthma.

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