

## IMPROVEMENT OF RESPIRATORY FUNCTION IN CHRONIC ASTHMATIC PATIENTS WITH AUTOGENIC THERAPY

M. HENRY, J. L. G. DE RIVERA, I. J. GONZALEZ-MARTIN and J. ABREU

*(Received 6 August 1991; accepted in revised form 26 August 1992)*

**Abstract**— Stress, unpleasant emotions and autonomic imbalance may play a main role in precipitating asthmatic attacks. In this study two homogeneous groups of asthmatic patients (N = 24) are treated over an eight-month period. The experimental group was treated with autogenic therapy and the control group with supportive group psychotherapy. Respiratory function parameters measured were Forced Vital Capacity (FVC), Forced Expiratory Volume in the first sec (FEV I), Forced Expiratory Flow between 25% and 75% of the FVC (FEF25-75%), and Mesoexpiratory Flow (MEF50%). The group under Autogenic Therapy obtained a relevant clinical improvement (> 15% of pretreatment values) in respiratory function. No significant changes were observed in the control group. These results suggest that autogenic therapy could be an effective adjunctive treatment in bronchial asthma.

### INTRODUCTION

Bronchial asthma is characterized by a reversible airways obstruction, intermittently precipitated by a great variety of aetiological factors and tending to chronicity [1]. A vital primary function – the respiratory process – is acutely and recurrently threatened, which fact may explain the high rate of minor psychopathological complaints in chronic asthmatic patients, predominantly anxiety and depression [2-5].

On the other hand, psychological factors alongside with allergic, infectious, environmental, neuroendocrinological and genetic ones have been implicated in the pathogenesis of bronchial asthma [6-11]. In fact, bronchial asthma can be considered as a typical example of the multifactorial model of psychosomatic disorders [12, 13], although some cases of asthma seem to be predominantly determined by allergic factors, as Spittle and Sears [14] remark (i.e. 'allergic asthma').

The influence of stress and unpleasant emotions in precipitating asthmatic attacks has been well documented [15-17].

Although pharmacological treatment continues to be the main therapy [18] in most asthmatic disorders, more attention should be paid to the relevance of psychotherapy for this disorder [19-26]. Furthermore, psychopathological manifestations can be complicated by the direct action of conventional pharmacological therapy, which may induce anxiety, nausea, vomiting, headaches, tremor and insomnia [27].

Autogenic therapy, with its remarkable effects on anxiety, stress reactivity and autonomic dysfunction, could constitute an appropriate adjunctive therapy for these patients, as it is in other psychosomatic entities [20, 28-30].

In order to evaluate this possibility we decided to treat a group of chronic asthmatic patients with autogenic therapy over an eight months period in contrast with an equivalent control group that received supportive group psychotherapy for the same period.

## METHOD

### *Subjects*

Patients were referred for treatment by the Service of Pneumology of the Department of Internal Medicine of The University Hospital of the Canary Islands. Selection criteria were as follows:

1. Presence of psychopathological disorders or psychosocial factors associated with the asthmatic disorder requiring treatment, as well as imperfect control of asthma with conventional medical treatment.
2. Spirometric evidence of bronchial asthma.
3. Absence of severe disorders in other apparatus and systems.
4. Absence of mental retardation or any other absolute or relative contraindications for autogenic therapy.
5. Age between 18 and 60 yr (adult patients).

The sample was constituted by a total of 24 patients (21 female and 3 male patients) randomly divided into two groups of 12 patients (11 females and 1 male in the experimental group vs 10 females and 2 males in the control group).

Patients were chronic asthmatic patients, with a moderate or severe disease, on maximum medical treatment, i.e. all of them using bronchodilators continuously and inhaled or oral steroids periodically or continuously. A similar important therapeutical effort was carried out with all these patients. Patients of both groups were comparable in terms of illness severity, medical treatment regimen and medical therapy outcome. Chronic asthmatic patients were selected in order to improve their medical condition, as they had an imperfect control of asthma with conventional medical treatment.

The sample's mean age was 39.66 yr ( $\pm$  12.09) ranging from 18 to 58 yr. The mean age of the experimental group was 40.08 yr ( $\pm$  11.41) ranging from 19 to 55 yr. The controls' mean age was 39.25 yr ( $\pm$  13.23) ranging from 18 to 58 yr. With respect to age no significant differences were observed.

### *Respiratory function assessment*

Respiratory function was assessed by Jaeger's Bodyscren 11 Pletismograph. In order to evaluate respiratory function we selected the following parameters, according to Roca et al. [31] :

1. Forced Vital Capacity (FVC);
2. Forced Expiratory Volume in the first second (FEV<sub>1</sub>);
3. Forced Expiratory Flow between 25% and 75% of the FVC (FEF<sub>25-75%</sub>); and
4. Mesoexpiratory Flow (MEF<sub>50%</sub>).

Besides these absolute parameters we have also determined relative function parameters in terms of percentage over the predictable standardized values, according to age, sex and weight.

### *Treatment*

Autogenic therapy, is a psychophysiological psychotherapy relying on periodic self-induction of an especial consciousness state achieved by 'passive concentration' on formulae with physiological contents and mental contact with the anatomical regions affected by the formulae. The main elements of the induction technique are: 1. passive concentration; 2. mental repetition of the autogenic formulae; 3. mental contact; and 4. stimuli reduction [29].

Conventional supportive group psychotherapy including an educational component focused on asthmatic symptomatology [32] was used in the control group in order to obviate the attention placebo effect of the experimental group undergoing a psychological treatment intervention with an 'extra attention'.

### *Procedure*

After assessing respiratory function patients were randomly assigned to one of the treatment groups. In the first interview the general purpose and characteristics of the respective treatment were explained to each patient. After obtaining informed consent, patients began treatment. In the experimental group, patients were taught the technique and advised to practice the autogenic exercises in three daily 15 min sessions. Over the eight months treatment period patients met the therapist weekly in 1 hour sessions. The patients of the control group also met with the therapist in weekly 1 hr sessions over eight months receiving supportive group psychotherapy including an educational approach.

Data were processed and analysed by using Sigma programme for biostatistical analysis [33]. Comparisons between groups were carried out by applying Student's *t*-test.

## RESULTS

*Pretreatment assessment*

The results of pretreatment respiratory function assessment appears in Table I.

**TABLE I. - RESPIRATORY FUNCTION PARAMETERS. COMPARISON OF PRETREATMENT VALUES (CONTROL VS EXPERIMENTAL GROUP)**

	Experimental		Control		Signif.
	<i>X</i>	SD	<i>X</i>	SD	
FVC	2.65	0.62	2.59	0.51	N.S.
FVC - % PRE	80.5	14.1	82.6	19.1	N.S.
FEV I	1.85	0.57	1.92	0.52	N.S.
FEV I - % PRE	67.0	19.0	71.9	23.5	N.S.
FEF25-75	1.66	0.70	1.84	0.85	N.S.
FEF25-75 - % PRE	46.0	20.1	50.8	25.9	N.S.
MEF50	1.90	0.88	2.13	1.05	N.S.
MEF50 - % PRE	42.3	20.2	51.3	27.2	N.S.

Signif. = Statistical Significance; *X* - Mean; SD = Standard Deviation;  
%PRE = Percentage of Predictable Value; N.S. = Not Significant.

The similarity between the mean values of the respiratory parameters of each group suggests that they are homogeneous, not having introduced any significant change in the original condition and homogeneity of the sample by its division into two groups.

*Post-treatment assessment*

The results of post-treatment respiratory function assessment appears in Table II.

**TABLE II. - RESPIRATORY FUNCTION PARAMETERS. COMPARISON OF PRETREATMENT VS POST-TREATMENT VALUES IN THE -EXPERIMENTAL GROUP AND THE CONTROL GROUP**

	Group	PRE		POST		DIF (SD)		t	Signif
		<i>X</i>	SD	<i>X</i>	SD				
FVC	E	2.65	0.62	2.96	0.59	0.31	0.24	4.55	***
	C	2.59	0.51	2.75	0.60	0.15	0.36	1.50	N.S.
% PRE	E	80.5	14.2	94.9	14.2	14.3	8.39	5.92	***
	C	82.6	19.1	87.2	20.5	4.58	11.0	1.43	N.S.
FEV I	E	1.86	0.57	2.21	0.48	0.35	0.36	3.37	**
	C	1.93	0.52	2.04	0.42	0.11	0.27	1.44	N.S.
% PRE	E	67.0	19.0	83.3	16.0	16.3	12.4	4.56	***
	C	71.9	23.5	76.3	21.8	4.41	10.4	1.46	N.S.
FEF25-75	E	1.66	0.70	2.10	0.66	0.44	0.58	2.64	*
	C	1.84	0.85	1.85	0.72	0.01	0.41	0.09	N.S.
% PRE	E	46.0	20.0	58.1	19.2	12.1	15.5'	2.71	*
	C	50.8	25.9	52.3	24.5	1.50	11.9	0.43	N.S.
MEF50	E	1.90	0.88	2.31	0.80	0.41	0.90	1.60	N.S.
	C	2.13	1.05	2.05	0.85	-0.07	0.57	-0.48	N.S.
% PRE	E	42.3	20.2	55.9	19.7	13.6	19.9	2.35	*
	C	51.3	27.2	55.2	26.3	3.91	22.5	0.60	N.S.

E = Experimental Group; C - Control Group; DIF = Mean Difference or Mean Improvement; Signif. = Statistical Significance; *X* = Mean; SD = Standard Deviation; % PRE = **Percentage** of Predictable Value; N.S. = Not Significant.

\* =  $p < 0.05$ ; \*\* =  $p < 0.01$ ; \*\*\* =  $p < 0.001$ .

*Experimental group.* The statistical analysis (two-tail Student's t-test) manifests a high significant improvement ( $p < 0.001$ ) in FVC mean value, as well as in the percentage over its predictable value (FVC - % PRE) and in the percentage over the predictable value of FEV 1 (FEV 1- % PRE). These data reveal an important improvement achieved in the respiratory function of these patients. FEV 1 obtains a clear significant improvement ( $p < 0.01$ ). Improvement is also observed in FEF 25–75 %, FEF 25-75-% PRE and MEF 50-% PRE although with a less statistical significance ( $p < 0.05$ ). This relevant improvement recorded by these physiological measurements indicates that autogenic therapy achieves an important beneficial effect in airways obtaining a real improvement in airflow limitation [19, 20, 21].

Also, there is a relevant clinical improvement achieved in these patients that has to be taken into account. The fact that seven out of the eight respiratory function parameters studied by us obtained an improvement over 15% from its initial values reflects an important clinical improvement, as Erskine-Milliss and Schonnell [21] and Cluss [24] already stated.

*Control group.* Statistical analysis manifests no significant differences in any of the eight respiratory function parameters studied by us. The amount of improvement observed in this group does not reach values 15 % higher, which are necessary in order to consider such improvement as clinically significant, as Erskine-Milliss and Schonnell [21] and Cluss [24] remark.

## DISCUSSION

Autogenic therapy was introduced in the experimental group as an adjunctive treatment not as a substitute for conventional medical treatment, thus, it is important to stress that autogenic therapy was used in these patients in addition to their normal conventional treatment for asthma. On the other hand, it should be stated that during the treatment period patients belonging to the group undergoing autogenic therapy were on an equivalent medication to those in the control group. Therefore, the results cannot be attributed to different treatment regimens with more medication and medical care added to the group under autogenic therapy. Moreover, the treating pneumologists carried out a similar medical and therapeutical effort with patients of both groups, and we can assume that they were close to an 'almost' blind condition, unknowing the patient's assignment, of course, as further as can be expected in a treatment with these characteristics (patients can spontaneously make some references to their treatment modality supplying data to the physician). The fact that pneumologists did not participate directly in this study has to be stressed.

Alongside with these remarks, it is also important to underline the fact that controls could have had only usual treatment for asthma, but conventional supportive group psychotherapy was used in the control group in order to obviate the attention-placebo effect of the experimental group undergoing a psychological treatment with an obvious extra attention paid to the patients of this group encompassing a feasible placebo effect. Thus, supportive group psychotherapy was used as a control technique in order to assess the specific therapeutical effect of autogenic therapy.

As it has been outlined in the results, the group undergoing autogenic therapy obtained a significant statistical and clinical improvement whereas the group following supportive group psychotherapy observed no significant improvement at all. Important autonomical implications of autogenic therapy may account for this improvement observed in the experimental group.

Thus, autogenic therapy, with its periodical induction of an autogenic shift, facilitates and increases autonomic balance, buffering or alleviating the effects of psychosocial stress, and therefore it can achieve an important improvement in the asthmatic condition. This way, these good results obtained with autogenic therapy in chronic asthmatic patients could be due to the fact of re-establishing an autonomic equilibrium, increasing the balance between sympathetic and parasympathetic nervous systems [28-30].

Since our purpose was studying resistant asthmatic patients, milder patients were not included, although we think that this sort of patients would also benefit from autogenic therapy. At present we are carrying out a trial in order to verify this hypothesis.

It is necessary to consider psychosocial and autonomic factors not only in the discussion of the aetiology, pathogenesis and complications of bronchial asthma but also in its treatment [10]. The presence of psychopathology [2,4,8] and the likely association of asthmatic attacks with emotional and psychosocial disorders [9, 10, 26] are clear positive indications for introducing psychotherapeutical techniques in the treatment of asthmatic patients [19, 20, 34, 35]. The allergic and inflammatory component needs to be treated with appropriate pharmacological agents [18]. The psychosocial component as well as the various factors associated with autonomic learning require a psychotherapeutical intervention [12, 34]. Autonomic imbalance deserves an adequate attention and treatment in order to improve the medical condition itself [23, 26, 35]. The very relevance of introducing autogenic therapy in rectifying autonomic dysregulation in bronchial asthma needs to be stressed.

We conclude that autogenic therapy proves to be an efficient adjunctive treatment in bronchial asthma achieving an important improvement in respiratory function, as evidenced in the patients of our experimental sample, whereas supportive group psychotherapy does not achieve this improvement. The likely changes induced by autogenic therapy in neurovegetative function may account for this relevant improvement observed in our patients [12, 19, 20, 28-30]. Although autogenic therapy cannot substitute for conventional medical therapy, actually conventional medical treatment for asthma is strengthened receiving a real positive reinforcement when autogenic therapy is added. Thus, autogenic therapy can be estimated as a feasible adjunctive treatment modality for asthma in clinical practice.

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