

AUTOGENIC THERAPY OF TEMPORAL LOBE EPILEPSY

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Epileptic patients often present psychiatric symptomatology, partly related to the underlying brain dysfunction, partly to the difficulties in psychological development and psychosocial adaptation that have originated from the manifestations of epilepsy. Among all the different types of epilepsy, it is accepted by most authors today that epilepsy originating or involving the temporal lobes is more frequently associated with psychiatric disorders⁹.

It has also been noted that psychophysiological factors, especially those associated with autonomic disturbance, influence the clinical manifestations of epilepsy⁵. Servit⁷, in a careful study of a large series of epileptics, has reported that approximately 25% of them consider situations of emotional conflicts as an important factor precipitating clinical seizures, and Small and Stevens⁸ have been able to show electroencephalographic evidence of subclinical epileptogenic activity induced by emotional stimuli in a small number of epileptics, most of them suffering from temporal lobe epilepsy.

Autogenic training, with its regulatory action on the autonomic nervous system and emotional reactivity, may be considered as a possibly useful adjuvant in the treatment of epilepsy, especially if there is a concomitant psychiatric disorder.

Reuter⁶ has used, with considerable success, autogenic training in the treatment of brain injured war veterans, reporting a marked improvement of anxiety and irritability in 70% of all his patients, and a significant reduction of the frequency and intensity of seizures in 78% of those affected by post-traumatic epilepsy.

Binder² and Thomas¹⁰ report similar clinical results with epileptics. Both authors also reported that, in some selected patients, the practice of autogenic exercises «on the spot» impedes or greatly attenuates the development of an impending seizure.

Luthe³, in order to explain the mentioned therapeutic results, advances the hypothesis that autogenic training acts on the pathophysiology of epilepsy by a double mechanism: First, indirectly, by way of a nonspecific psychophysiologic stabilizing effect that increases resistance to physical and psychological stress; secondly, by specific interference at a neurophysiological level with the mechanisms triggering the epileptic seizure.

Barolin and Dongier¹ applied autogenic training to 60 mentally retarded epileptic children, without clear evidence of improvement of seizure activity, but with marked improvement of their general behaviour and emotional reactivity. In a certain number of cases, the electroencephalogram showed hypersynchronization and increase of epileptic paroxysmic activity during the autogenic state, without concomitant clinical manifestations. The authors made the hypothesis that infraclinical electrical discharges are facilitated during the autogenic state, which would in turn have a beneficial effect on psychopathological manifestations.

A similar mechanism of repeated subclinical discharge may be at work in the reduction of epileptic seizures reported by other authors, although it is difficult to reconcile with the observation, by Binder and Thomas, that passive concentration on the autogenic formulae may impede the devel-

opment of an impending seizure. If anything, it should facilitate it; which may result in decreased intensity and possibly less after-effects, but not in complete prevention of the seizure.

On the other hand, if subclinical epileptic discharges take place during the autogenic state, it is quite possible that the regular practice of autogenic training would allow for «microseizures» to happen, periodically discharging the epileptic brain, and diminishing the need for clinical seizures.

The object of this paper is to evaluate the therapeutic effects of autogenic training on the psychiatric and neurological symptoms of temporal lobe epilepsy, and to attempt to clarify the hypotheses explaining the previously reported therapeutic action.

Method

Subjects. 21 patients with temporal lobe epilepsy were referred by the neurologists of the Seizure Clinic of the Montreal Neurological Hospital for psychiatric help. Prior to referral, they were screened on the basis of the following criteria:

1. Absence of chronic medical conditions, other than epilepsy.
2. Absence of overt psychosis.
3. Willingness to follow a therapeutic regime which would involve frequent visits to the hospital and psychiatric interviews.

The subjects were randomly assigned by name-sorting to one of two possible groups: AT (autogenic training) group and C (control) group.

Procedure. Group meetings were held weekly, independently for groups AT and C. The duration of the meetings was approximately one hour. The patients of the AT group followed standard autogenic training, limited to the heaviness and warmth formulae. The patients of the control group (C) received a supportive type of psychotherapy. After four months it was necessary to change the format from group to individual psychotherapy, because of the need felt for individual adjustments of the autogenic training procedure, and also because of the high absenteeism of the members of the control group. Most patients felt satisfied with the change, stating that they preferred individual over group therapy.

All patients continued their regular neurological appointments and antiepileptic medication, with only minimal or no changes.

Shortly after the beginning of treatment, one of the patients of the AT group moved to another town, for reasons unrelated to the treatment, and was excluded from the study.

Evaluation of the therapies. All patients were rated before the beginning of treatment and nine months later by a psychiatrist ignorant of the group assignments of the subjects, and even of the existence of two groups, and who had no other contact with the patients than the mentioned interviews, with the following instruments:

– The Brief Psychiatric Rating Scale (BPRS) described by Overall and Gorham in 1972. This instrument consists of 18 items describing different aspects of psychopathology and behavior, each item being assigned a value from 1 (no pathology) to 7 (maximum pathology). In order to facilitate analysis and comparison of data, the 18 items have been reduced to five clusters, conserving the total sum of scores as a «Total Pathology Score» (see Table I).

– The Cornell Index. This is a self-reporting questionnaire used for rapid evaluation of emotional and psychosomatic disturbance, described by Weider in 1946. It consists of 100 questions, and the answers are clustered into six factors (see table II).

The patients kept a log of their seizure activity, and this log was used, together with the neurological interviews, to rate both frequency and intensity of seizures.

Finally, all patients had an electroencephalographic recording, both before and at the end of the 9-months treatment program. The patients of the AT group performed the first standard autogenic

exercise during part (10 minutes) of the recording. All recordings were stored on magnetic tape for future computer analysis.

Results

BPRS. There is a clear trend towards improvement in most of the variables, by most of the patients in both groups. Statistical analysis of the difference of means of scores before and after the treatment within each group is presented in Table I.

TABLE I. - *BPRS: Differences Between Mean Pre- and Post-Treatment Scores of Autogenic Trainees (AT) and Control Patients (C).*

Group ^a	A.T. ^b	C. ^c
Total pathology	10.9 *	4.3*
Thought disorder	.8	.5
Withdrawal	1.4	.8
Hostility-paranoia	2.2 *	1.7
Anxiety	3.4 *	1.7*
Depression	1.7 *	.8

^a n = 10 for both groups

^b A.T. = autogenic training group

^c C = control group .

* p<.01,

The mean pretreatment score in total pathology of the AT group was 46.9 (s.d. = 9.2) and the post-treatment scores was 36 (s.d. = 6.02); this represents a highly significant improvement ($t(9) = 11.3$; $p<.01$). The corresponding values in the control group were 47.3 (s.d. = 10.15) and 43 (s.d. = 12.12); also a significant difference ($t(9) = 5.8$; $p<.01$). The scores for anxiety improved from 10.6 (s.d. = 2.17) to .6 (s.d. = 2.54) in the AT group (i.e., a significant improvement. $t = 5.8$, $p<.01$), and from 10.5 (s.d. = 2.1) to 8.8 (s.d. = 3.11), in the control group ($t = 3.35$; $p<.01$).

The difference of means between post- and pretreatment scores in hostility - paranoia and in depression show an improvement significant at the .01 probability level in the AT group, but not in the controls.

No significant change was obtained in either of the two groups in the variables of «withdrawal» and «thought disorder».

The comparison of the mean improvement scores in total pathology between the AT group (mean improvement score = 10.9) and the control group (mean improvement score = 4.3) shows a marked superiority of the improvement obtained by the subjects of the AT group ($t(18) = 1.98$; $p<.05$). Likewise, the improvement in the anxiety score is significantly superior in the AT group than in the control group ($t(18) = 2.17$; $p<.05$).

Cornell Index. Table II presents the differences between pretreatment and post-treatment mean scores (= mean improvement score) obtained by each group in the several clusters of the Cornell Index.

TABLE II. - *Cornell Index: Difference Between Mean Pre- and Post-Treatment Scores of Autogenic Trainees and Control Patients.*

Group ^a	A.T. ^b	C. ^c
Total score	9.3 *	3.0
Inadequacy	2.3 *	.9
Depression	.4	.2
Nervousness	3.0 *	.9
Suspiciousness	.5	-.1
Psychosomatic	2.6 *	.7
Psychopathy	.8	.5

^a n = 10 for both groups

^b A.T. = autogenic training group

^c C = control group.

* p<.01.

The subjects of the AT group show a consistent and significant improvement on feelings of inadequacy ($t = 4.77$; $p < .01$); anxiety and nervousness ($t = 4.5$; $p < .01$); psychosomatic symptomatology ($t = 4.38$; $p < .01$) and in the total score ($t = 12.6$; $p < .01$).

The subjects of the control group, although presenting a definite trend towards improvement, do not reach improvement values of statistical significance.

Seizure activity. Whereas the subjects of the control group did not significantly decrease neither the frequency nor the intensity of seizure activity, a small number of subjects in the AT group did significantly reduce the frequency of their seizures, and most of the subjects of the AT group reported a decreased intensity, either in the duration of the seizure, the degree of obnubilation, unpleasant after effects or a combination of the three.

TABLE III. - *Changes in Seizure Frequency in Autogenic Trainees and Control Patients.*

Group	n	mean change ^a
Low frequency ^b		
Autogenic Training	7	.03
Control	8	.05
High frequency ^c		
Autogenic training	3	4.5*
Control	2	.8

^a in seizures/week

^b 1 seizure/week or less

^c more than 1 seizure/week

* p<.01

As a whole, there was no generalized reduction of seizure frequency in the autogenic training group. However, after further dividing the group into low and high frequency of seizures, it became clear that the patients in the high seizure frequency level achieved a very significant reduction in the number of their attacks. Some of the patients of this category had as much as two seizures daily.

Common characteristics of the high seizure frequency group were: predominance of absence attacks of short duration; high levels of anxiety; clear relationship between stressful and anxiogenic situations and precipitation of attacks, and question of occasional hysterical seizures.

Prevention of seizures. Although all patients were told that autogenic exercises could prevent or abort an impending crisis, very few of them tried to make use of this property, and those who did, did so inconsistently. There is no clear explanation for this resistance phenomenon. Some patients did not have prodromae or aura before the crisis. Those who did attempt rarely to prevent further development of the crisis by passive concentration on the autogenic formulae were usually unsuccessful. Paradoxically, a patient from the control group reported occasionally averting crisis by sitting quietly with the eyes closed and concentrating on praying.

The opposite phenomenon was however observed in at least two patients, and questionably in a third one, i.e. precipitation of a psychomotor attack during passive concentration on the autogenic formulae. Reduction of the duration of the exercises, with increase in their frequency was recommended to these three patients, with no further incidents.

Electroencephalogram. No significant change was found in the EEG recordings taken prior to treatment and after nine months of treatment. However, in the AT group the part of the recording obtained during passive concentration on the first autogenic formula showed marked difference from the rest of the recording.

The more consistent EEG changes observed consisted of diffuse low amplitude irregular slow wave activity in the theta frequency band, recorded diffusely over both hemispheres, interrupted by the presence of well regulated rhythm in the alpha frequency. There appears to be a tendency to exaggerated manifestations of the epileptic abnormalities present in the waking EEG, mainly of the medium amplitude slow sharp waves on the temporal areas affected. Slow sharp wave activity, not clearly epileptogenic in nature, as recorded over the fronto-central parasagittal region in a small number of cases.

Two independent experts in EEG interpretation considered the autogenic-state part of the recording highly compatible with end of stage I and early stage II of sleep, with the peculiarity, rarely seen in pre-drowsy or drowsy states, that this pattern similar to stage I-II of sleep was persistent and sustained, without shifts either to wakefulness or deeper stages of sleep, and starting and ending quite abruptly in many of the subjects (corresponding to the beginning and end of passive concentration).

Further analysis of the EEG recordings is under way, in an attempt to quantify similarities and differences among patients, and to objectify, as far as possible, the changes induced during the autogenic state. Computer analysis of the recordings is likewise under way, and the results will be published at a later date.

Discussion

The patients treated with autogenic training show a definite improvement, both subjective and externally validated by a psychiatrist, in variables related to anxiety, feelings of inadequacy and psychophysiological disturbances.

Improvement in hostility, suspiciousness, and depression, although evident to the observer, were apparently not noticeable to the subject, as reflected by the Cornell Index. Patients of the control group, who only received supportive psychotherapy, were also considered as markedly improved by the psychiatric rater, particularly in the variability of anxiety, although significantly less than the pa-

tients of the autogenic training group. The BPRS seems to be a more sensitive instrument to detect change than the Cornell Index. This is not surprising, as a psychiatric interview is more flexible and more likely to yield important data than a self-administered questionnaire, although, of course, the psychiatric interview introduces variables of possible bias and subjectivity on the part of the interviewer. The issue of bias is not likely to be important in the present study, as the psychiatric interviewer was blind to group assignments, and both groups nevertheless achieved significantly different levels of improvement.

With reference to seizure control, autogenic training seems to be more effective in reducing seizure activity in those patients with very frequent seizures, who have a strong emotional component in the precipitation of seizures, and who have some tendency to resort to hysterical maneuvers. Significant reduction of tension and anxiety is most probably the underlying mechanism of this improvement.

Prevention of seizure development by passive concentration in autogenic formulae has not been demonstrated in the present study, and there is some indication that the contrary may happen, that is, actual precipitation of epileptic discharges during the autogenic state. This may be a peculiarity of temporal lobe epilepsy, and different results may be obtained in other types of epilepsy. Reduction of the length of the autogenic exercises seems to prevent autogenic-induced epileptic discharges, at least at the clinical level.

Although the evidence is not definitive, the above mentioned clinical findings seem to support Barolin and Dongier's hypothesis that epileptic discharges are facilitated during the autogenic state, based on electroencephalographic findings¹.

The electroencephalographic findings are only preliminary, and are presented in a tentative fashion. Not much information was obtained on the influence of autogenic training on epileptic activity; although it was clear that there were no significant long term changes in brain electrical activity, at least not after nine months of practicing autogenic training. Possibly, patients with relatively well controlled focal epilepsy are not the ideal ones to study the influences of the autogenic state on epileptic activity. Changes in the recording and epileptic phenomena during the autogenic state may be more easily found in patients with more pronounced and generalized bioelectrical disturbances.

Summary

Two groups of patients with temporal lobe epilepsy and psychiatric disorder were treated with either autogenic training (AT) or supportive psychotherapy (control group). After nine months of treatment, the AT group showed a significant improvement of their psychiatric problems, as measured by the Brief Psychiatric Rating Scale (BPRS) and the Cornell Index. The patients in the control psychotherapy group also showed some improvement in their scores on the BPRS, but the improvement in the Cornell Index was not significant. Comparison of both groups showed a definite greater level of improvement in the AT group. Some patients in the AT group had a marked reduction in the frequency of their seizures. These were patients with high seizure frequency (more than once a week), strong emotional factors in the precipitation of seizures, and a tendency to hysterical defense mechanisms. No results were obtained in the attempts to prevent seizure activity by the practice of AT before an impending crisis, and there are some indications that in certain cases the autogenic state may facilitate seizure activity, although reduction in the duration of the autogenic exercises reversed this trend. No basic change in the EEG during the nine months of therapy was observed. A state similar to the end of stage I - beginning of stage II sleep, remarkably constant and persistent, appeared in the EEG during the practice of autogenic first and second standard exercises.

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