Reduction in Drug Prescription using Biofeedback Relaxation in Neurotic and Psychosomatic Disorders

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Abstract

Background: There is a paucity of Indian studies on effectiveness of biofeedback in reducing drug prescription in neurotic and stress related disorders.

Methods: Study sample of generalized anxiety disorders (GAD), mixed anxiety depression, obsessive compulsive disorder (OCD), dissociative disorder and headache were assigned to three groups of 28, 23 and 27 patients respectively. Group 1 were subjected to drug therapy, Group 2 to biofeedback and Group 3 to drugs and biofeedback for 12 weeks. All were followed up at six months and one year.

Result: At the end of one year, in Group 1, 60.71% had mild and 17.86% had moderate anxiety levels, while 21.43% required no further follow up. In Group 2, 39.13% showed mild and 43.48% had moderate anxiety levels, while 17.39% required no follow up. In Group 3, 22.22% had mild and 11.13% had moderate levels of anxiety, while 66.66% required no further treatment.

Conclusions : Biofeedback relaxation with pharmacotherapy is useful in select group of neurotic and psychosomatic cases.

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Key Words : Biofeedback; Neurosis; Psychosomatic disorders

Introduction

Biofeedback is designed to facilitate self-regulation of bodily processes that are not easily observed (e.g. blood pressure, small muscle contraction, skin resistance) using electronic instruments for feed back in the form of an auditory and /or visual signal [1]. Biofeedback is used in clinical conditions such as headache, hypertension, cardiac arrhythmias, Raynauds disease, chronic pain, faecal and urinary incontinence [2-8]. In neurotic illnesses, anxiety can be measured using biofeedback instruments [9].

Material and Methods

The study conducted at a zonal hospital included 90 cases of neuroses and psychosomatic disorders diagnosed as per the International Classification of Diseases (ICD)10 criteria. All subjects were screened by Taylor's Manifest Anxiety Scale (TMAS) [10] and those with mixed anxiety and depression were subjected to Beck's Depression Inventory (BDI) [11]. The cases with scores of mild to severe anxiety and mild to moderate depression on BDI were studied. The same tests were given again at 12 weeks, six months and one year.

In Group 1, 30 patients were given specific psychoactive drugs like buspirone 5-10 mg, imipramine 25- 75 mg, nortriptyline 75-150 mg, amitriptyline 25-150 mg,

clomipramine 100-150mg and fluoxetine 20- 60 mg for 12 weeks. In Group 2, 30 patients were given biofeedback sessions five days a week of 30 minutes each for first four weeks and thereafter thrice a week of same duration for eight weeks. In Group 3, 30 patients were given both psychoactive drugs and biofeedback sessions. The biofeedback instruments used in this study were electrodermal reactivity (edr) biofeedback, EMG (electromyographic) biofeedback, thermal biofeedback and electroencephalographic biofeedback. This procedure works better when subjects are taught relaxation technique prior to biofeedback therapy.

Results

A total of 78 out of 90 patients completed the study protocol. Group 1 consisted of 30 patient (Table 1). Two dropped out before the 12 weeks period. From anxiety levels (Table 2), it is evident that there is substantial improvement in moderate and severe anxiety categories. A total of 21.42% (6/28) cases did not require any follow up.

Group 2 (biofeedback group) consisted of 30 patients (Table 3), out of which seven dropped out before completion of 12 weeks. The recordings of the anxiety levels (Table 4) reveal that there is substantial improvement in the severe degree but not in the moderate category. A total of 17.39% (4/23) cases did not require any follow up.

Group 3 consisted of 30 patients (Table 5) of which three cases dropped out before 12 weeks period. The recordings of

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the anxiety levels in Group 3 (Table 6) reveal that there is significant improvement in the moderate and severe category. A total of 66.66% (18/27) cases did not require any follow up.

The outcome of the treatment in the three groups is shown in Fig.1. It shows that there is no difference in the three groups during the initial phases of therapy up to eight weeks. There is significant improvement in the Group 3 at 12 weeks, 6 months and one year as compared to Group 1 and 2.

Discussion

In Group1, at one year those with moderate levels of anxiety progressed from 12/28 (42.86%) to 5/28 (17.86%) and those with mild anxiety levels from 10/28 (35.71%) to 17/28 (60.17%). OCD and dissociative disorder cases did not benefit much, while cases of

Table 1

Details of patients in Group 1

Group 1	Males	Females
Generalised anxiety disorder	10	7
Mixed anxiety disorder	5	3
Obsessive compulsive disorder	0	1
Dissociative disorder	0	2
Headache	0	2
Total	15	15
Dropout	0	2 (GAD)
Age (years)	37.0 ± 8.6	29.92 ± 7.2
Range	18-46	20-40

Table 2

Taylor Manifest Anxiety Scores in Group1 (Drug treatment only)

TMAS scores	Initial phase	12 weeks	6 months	1 year
>36 (severe anxiety)	5/30 (16.60)	0	0	0
31-35 (moderate anxiety)	15/30 (50%)	12/28 (42.86%)	08/28 (28.5%)	5/28 (17.86%)
26-30 (mild anxiety)	10/30 (33.33%)	10/28 (35.71%)	14/28 (50%)	17/28 (60.71%)
No anxiety	00	6/28 (21.42%)	6/28 (21.42%)	6/28 (21.42%)
Total	30	28	28	28

df =3, $\chi^2 =9.72$, p<0.05

Table 3

Details of patients in Group 2

Group 2 (n=23)	Males	Females
Generalised anxiety disorder	11	12
Mixed anxiety and depression	2	0
Bronchial asthma	0	3
Headache	1	1
Total	14	16
Dropout	4 (GAD)	3 (Br Asthma)
Age (years)	34.76 ± 8.2	34.02 ± 8.0
Range	20-38	17-34

psychogenic headache did well in the initial stages i.e. as long as they were given drugs. The cases of mixed anxiety and depression did well with anxiolytics and antidepressants. None of them were depressed on BDI at the end of 12 weeks. The records showed that anxiolytics and antidepressants in adequate doses did benefit the patients with anxiety. The need to continue drug maintenance can be seen in the follow up i.e. 22/28 showed anxiety and were symptomatic but at a reduced scale.

In Group 2 at the end of 12 weeks, 17/23 showed anxiety levels in the range of mild 6/23 (26.08%) and

Table 4

Taylor Manifest Anxiety Scores in Group 2 (Biofeedback only)

TMAS scores	Initial phase	12 weeks	6 months	1 year
>36 (severe anxiety)	04/30 (13.33%)	0	0	0
31-35 (moderate anxiety)	16/30 (53.33%)	11/23 (47.83%)	12/23 (52.17%)	10/23 (43.48%)
26-30 (mild anxiety)	10/30 (33.33%)	6/23 (26.08%)	7/23 (30.43%)	9/23 (39.13%)
No anxiety	00	6/23 (26.08%)	4/23 (17.39%)	4/23 (17.39%)
Total	30	23	23	23

df=3, $\chi^2=0.74$, p>0.05

Table 5

Details of patients in Group 3

Group 3 (n=27)	Males	Females
Generalised anxiety disorder	9	11
Mixed anxiety and depression	3	1
Obsessive compulsive disorder	1	2
Headache	2	1
Total	15	15
Dropout	0	3 (GAD)
Age (years)	35.73 ± 9.4	40.74 ± 8.9
Range	17-50	20-45

Table 6

Taylor Manifest Anxiety scores in Group 3 (Drugs and biofeedback)

TMAS scores	Initial phase	12 weeks	6 months	1 year
>36 (severe anxiety)	03/30 (10%)	0	0	0
31-35 (moderate anxiety)	18/30 (60 %)	1/27 (3.71%)	2/27 (7.42%)	3/27 (11.13%)
26-30 (mild anxiety)	8/30 (26.67%)	6/27 (22.22%)	5/27 (18.52%)	6/27 (22.22%)
No anxiety	1/30 (3.33%)	20/27 (74.07%)	20/27 (74.07%)	18/27 (66.66%)
Total	30	27	27	27

df=3 $\chi^2=10.34$ p<0.02

Fig. 1 : Treatment profile of groups

moderate 11/23 (47.8%) severity on TMAS. At the end of one year 82.6% had persistent anxiety levels and were symptomatic. Frontalis EMG biofeedback is currently recognized as the treatment of choice for muscle contraction headache [12-15]. Two cases of headache in Group 2 did well on biofeedback, EMG and EEG. They continued to show the response for 12 weeks. However at the end of 6 months and one year, the symptoms had recurred. Biofeedback therapy used in isolation was not a panacea for neurotic/psychosomatic illness.

We attribute the discontent in Group 2 patients to not being given any pharmacotherapy. Inducing them to operate the biofeed back equipment had been fruitful for the initial weeks because of the novelty but the enthusiasm could not be sustained, which explains the higher drop out rate seen in this group.

In Group 3, the response was very good and sustained at the end of one year period. Three cases of OCD showed moderate levels of anxiety at the end of follow up and improvements in symptoms was minimal. Three patients of headache showed considerable improvement and six cases of GAD continued to show mild levels of anxiety at the end of study. We can attribute the change in the response to the fact that drugs were given along with biofeedback and gradually withdrawn. Many of the patients were enthusiastic to undergo this method of treatment and on motivation were willing to stop use of anxiolytics and antidepressants at the end of 12 weeks period. The drop out rate was also less.

During the study we used all the biofeedback parameters to measure the anxiety levels and attain maximum relaxation. i.e. GSR, pulse, temperature, respiration, EEG and EMG. Chronic myalgia and headache cases respond to modulated synchronized alpha activity of the brain which can be learnt by them.

Several studies have suggested the use of EEG modulation in stress induced disorders [16,17] but we

found biofeedback alone is not adequate. Judicious combination of pharmacotherapy with biofeedback works well. We found 12 weeks period for training and exercise on biofeedback is adequate for any patient.

Conflicts of Interest

None identified

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