

Improvement in Writer's Cramp with Use of Behaviour Therapy: A Study of Three Cases with Six Month Follow-up

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Abstract

Writer's cramp (WC) is a focal dystonia causing impairments in daily life. The chief symptom is the inability to use the hand, or difficulty in using it, for writing or other occupational purposes. Behavioral treatment approaches have been shown to improve handwriting performance. The purpose of this study was to examine the effects of behaviour therapy in WC. In the current study three cases of writer's cramp were treated with eclectic therapy which included relaxation technique, retraining and pharmacotherapy (anxiolytic drugs). The handwriting performance was examined before and after treatment. In all the three cases, the response to treatment was good, and the improvement was maintained at 6 months follow-up. The patients could write comfortably and legibly without tension in hand muscles after undergoing the intense therapy. Results suggest that patients with WC benefit from the use of behavior therapy combined with pharmacotherapy (anxiolytics).

Key words: Behaviour therapy, pharmacotherapy, retraining, writer's cramp

INTRODUCTION

Writer's cramp (WC) is one of a considerable group of so-called occupational neuroses occurring with more or less frequency among persons whose living depends upon their ability to use their hands rapidly and continuously for many hours a day, such as writers, telegraphers, pianists, violinists, etc.^[1] It may affect only one or two muscles, or it may involve the entire hand, or the entire arm and shoulder.^[2] Symptoms usually appear when a person is trying to do a task that requires skilled manual activity.^[3] The chief symptom is the inability to use the hand, or difficulty in using it, for writing or other occupational purposes. The condition is characterized by spasm, fatigue, pain, stiffness, jerks, and tension to the muscles.^[4]

Epidemiological studies have certain findings in common.^[5] This illness is more common in males, appears most often in the third and fourth decade and is present in all societies where writing is common. The incidence is highest in those involving constant writing and typing.^[6,7]

Divergent views exist about the symptoms and pathology of the disease. The actual etiology of WC is unknown.^[8] However, It is clearly established that the cramping of the

muscle involved is secondary to a central nervous system disorder and is not a primary muscle disorder.^[9]

There seems little doubt that writer's cramp represents the outcome of a learning process and it therefore seems reasonable to attempt to reverse this process either by teaching new response habit or by extinguishing old ones.^[10] Various behavioural methods have been used to treat this condition, namely retraining,^[11] avoidance conditioning,^[12] massed or negative practice,^[10] systematic desensitization.^[13] Recently, modification of retraining method has also been documented.^[14]

John *et al.* reported use of eclectic approach including relaxation technique, supinator writing, supportive psychotherapy and anxiolytic drugs in the treatment of writer's cramp.^[15] The methods of relaxation, gradual approximation, desensitization, retraining and avoidance were also documented by Mehta *et al.* ^[16] Research evidence suggests that the application of

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muscle substitution strategies may be beneficial in Writer's Cramp patients.^[17] Modifying the standard handwriting posture changes the handwriting technique, replacing the abnormal motor program with a normal behavior that retunes the sensorimotor circuitry. Studies conducted with Writer's Cramp patients showed improvement after hand writing modification techniques.^[18]

In this paper, three cases of writer's cramp were treated with eclectic approach including relaxation technique, retraining and pharmacotherapy (anxiolytic drugs).

CASE REPORTS

Case 1

Mr. AS, 40-year-old married male, graduate, bank employee, from a joint family presented with 2 years history in the form of tremor while counting cash at the bank and gradually progressed to inability to write due to which he perceived problems in his professional life. His life has been dominated by a demanding father who still lives with him. On examination, the patient was anxious, his writing was characterized by severe jerky movements, grip in the right hand was not good, and he complained of pain on right side of the body. No major co-morbid medical/psychiatric abnormality was detected.

Case 2

Ms. DR, a 25-year-old female, M.SC IT, belonged to a nuclear family. Problems started about 1-year back when the patient observed changes in her handwriting while sitting for her M.SC examination (Part 1). Writing worsened with time to an extent that she feared failure in examinations. The patient scored low marks in her last semester because of writing difficulty. She reported heaviness in right hand and occasional pain while writing. The course of writing difficulty was continuous although no problem was reported in any other fine activities. Premorbidly, she had cluster C traits but no major co-morbid psychiatric abnormality was detected. Physical examination also revealed no abnormality.

Case 3

Ms. DC, a 34-year-old female, postgraduate, married, from a nuclear family, working as a cashier in school presented with difficulty in writing which started 4 years prior to hospital visit with a continuous course. The patient reported that while writing her hand becomes tight, heavy and stiff. Her writing was illegible. There was uneasiness and weakness of the hand, and she had to grip the pen tightly. She has been married since past 13 years with considerable marital disharmony. On examination, the patient was sad and anxious. Medical examination revealed no abnormality.

METHOD

In this paper, three cases of writer's cramp were treated with eclectic approach. These patients were diagnosed with Writer's Cramp by a qualified psychiatrist and were referred for

behaviour therapy from the Psychiatry outpatient department of Government Medical College and Hospital, Chandigarh. To establish a baseline of the problematic behaviour, a writing sample was taken from these patients during the first interview and it was also taken at the end of the therapy session to see if there was any improvement in writing. All the patients were given individual treatment sessions. A similar programme was used for all the patients who were seen three times a week on alternate days for a period of 10 weeks. Each therapy session comprised of two phases. The patient was first made to do Jacobson Progressive Muscular Relaxation (JPMR) and afterwards writing session for 30 minutes was held. Therefore, each therapy session lasted for approximately one hour. The patients were forbidden to write during the treatment phase.

During the initial stage of retraining the patients were made to draw circles of decreasing diameter with a paintbrush held between the index and middle fingers of the writing hand in the supinator position with fingers in the position of relaxation. Later they were asked to draw spirals and straight lines with hand in the same position. Next step was to hold a brush like a pen and write large block letters with hand in pronated position with fingers touching the pen held between the index and middle finger. The sequence was repeated with a normally held soft lead pencil and finally a pen was introduced. The last few sessions were devoted to increasing the speed [Table 1]. During each writing session the patients were instructed to stop writing momentarily whenever they felt any tremors or tension in hand. The therapist made the patient to stop and relax by contraction and relaxation of hand muscles. Patients were also corrected for wrong positioning of the hand while doing the writing activity. The patients were asked to practice for half an hour twice daily for all the subsequent stages. The patients were warned against gripping the pen too hard so that the fingers served mainly to guide and not to grip the pen. Follow-up was maintained for 6 months.

RESULTS

During each session patient's subjective reporting of pain and discomfort was noted by the therapist. By the end of 30 sessions, the patients were able to write legibly and were free of

Table 1: Summary of the treatment program

Number of sessions	Task
2	Supinator writing circles (15 cm)
2	Reduction of circle size to 2 cm diameter
4	Writing individual letters, then words on single ruled paper
4	Switching to pronator position
4	Writing of words and sentences with brush
4	Writing with felt pen
4	Writing on four ruled paper reducing letters to normal size
3	Writing on blank paper
3	Writing with time limit to improve speed

JPMR: Jacobson's Progressive Muscular Relaxation

pain, spasm, tremors and discomfort. Writing speed improved after practice sessions. The improvement was maintained in all the three patients at a 6 months follow-up.

DISCUSSION

In this group of three patients, the duration of writing problem ranged from 1 year to 4 years. All the three patients were well educated (graduate and postgraduate) and with writing as an important part of their work profile. All the patients reported emotional and adjustment problems, and a high degree of anxiety on psychiatric examination. Hence, an eclectic therapy treatment was planned including pharmacotherapy (anxiolytics) and behavior therapy (retraining) was used as a treatment regime.

In all the three cases, the response to treatment was good and the improvement was maintained at 6 months follow up. The patients could write comfortably and legibly without hand muscle tension after undergoing the intense therapy. This technique focused on retraining the hand muscles to function without any strain and controlling anticipatory anxiety for the spasm by use of relaxation method.

In the similar line of treatment John et al. reported three cases of writer's cramp using eclectic approach including relaxation technique, supinator writing, supportive psychotherapy and anxiolytic drugs and observed improvement after treatment and at follow-up.^[15]

Mehta, Chawla, and Ochaney studied 30 patients treated over a period of 5 years with a minimum follow-up of 6 months. This study included 28 males and 2 females with a mean age of 34.83 years in the age range of 19 to 54 years. There were two groups in this study, group one comprised of 20 patients subjected to relaxation therapy and retraining while group two comprised of 10 patients who had general anxiety and specific anxiety in different situations who were given relaxation, systematic de-sensitization and retraining. Significant improvement was noted for subjects in both the compared groups.^[16]

Chavan et al reported a study of 23 cases of writer's cramp with behaviour therapy, individual psychotherapy and anxiolytic drugs. Behaviour therapy (BT) included JPMR and retraining exercises. Eight patients had only BT, four had BT and drugs, two had JPMR only, five had JPMR and drugs and two had only drugs. Only four patients showed good improvement; eight had no improvement at all. BT as treatment, short duration of illness, long duration of treatment involving frequent sessions were found to be factors associated with good outcome.^[19] These research evidences suggest that behavioural management is effective in the management of writing problems in person with writer's cramp.

The findings of the study suggest that above eclectic approach can be useful for patients presenting with WC, which is

traditionally known to be refractory to several therapeutic approaches.

CONCLUSIONS

It can be said that in all the three cases, the response to treatment was good, and the improvement was maintained at 6 months follow-up. The patient could write comfortably and legibly without hand muscle tension after undergoing the intense therapy. An eclectic approach, that is, using pharmacotherapy and psychotherapeutic techniques indicate favorable results. Since our observations/conclusions are based on only three cases, we recommend further research for reliable generalizations.

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Conflicts of interest

There are no conflicts of interest.

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