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TREATMENT OF VOCALLY DISRUPTIVE BEHAVIOUR OF MULTIFACTORIAL AETIOLOGY

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SUMMARY

Objective. To describe the treatment of vocally disruptive behaviour (VDB) of multifactorial aetiology.

Method. Three case reports were used to illustrate the treatment of multifactorial VDB.

Results. A biopsychosocial assessment is required to identify the different aetiologies involved and the way they interact. Acute medical and psychiatric factors may demand that interventions are introduced simultaneously rather than in succession.

Conclusion. Successful interventions require the combination of biopsychosocial strategies tailored to the individual case with realistic goals that include the acceptance of a residual level of VDB as a reasonable outcome.

KEY WORDS—vocally disruptive behaviour; treatment; nursing homes; multidisciplinary team

INTRODUCTION

Vocally disruptive behaviour (VDB) which occurs in 11–30% of nursing home residents (Zimmer *et al*., 1984; Ryan *et al*., 1988; Cohen-Mansfield *et al*., 1990; Cariaga *et al*., 1991), is one of the most challenging behaviours for nursing home staff. The persistent noise reduces the quality of life of other residents, is very distressing for staff (Everitt *et al*., 1991), and may be a basis of complaint from neighbours and visitors. It is in these circumstances that psychogeriatric services are frequently requested to intervene.

Clinically, VDB presents as a pattern of acute to chronic behaviour in individuals who may or may not be demented. Vocal disruption may be continuous or intermittent, appear purposeless or goal-directed, and may vary in volume, content, and the degree of disruption (Ryan *et al*., 1988).

Dementia, particularly with severe cognitive impairment, is the most prominent mental disorder reported as being associated with VDB (Jackson *et al*., 1989; Cohen-Mansfield *et al*., 1990; Cariaga *et al*., 1991). This is frequently complicated by depression (Greenwald *et al*., 1986; Cohen-Mansfield *et al*., 1990; Carlyle *et al*., 1991; Cohen-Mansfield *et al*., 1992), psychosis (Hallberg *et al*., 1990a), sleep disturbance (Cohen-Mansfield *et al*., 1990; Cariaga *et al*., 1991), and other agitated behaviours (Hallberg *et al*., 1990a; Cohen-Mansfield *et al*., 1990; Cariaga *et al*., 1991). Less frequently, VDB occurs in non-demented patients with a range of conditions which include psychosis secondary to Parkinson's disease (Steiger *et al*., 1991), and depression or psychosis associated with mental retardation (Pasion and Kirby, 1993; Snowdon *et al*., 1994). In these circumstances, it is not surprising that VDB is associated with the use of physical and chemical restraints (Cohen-Mansfield *et al*., 1990; Cariaga *et al*., 1991; Cohen-Mansfield and Werner, 1995).

VDB has been found to be related to severe impairment in the performance of activities of daily living (Jackson *et al*., 1989; Hallberg *et al*., 1990a; Cohen-Mansfield *et al*., 1990; Cariaga *et al*., 1991), and to the expression of pain (Cohen-Mansfield *et al*., 1990, 1992; Cohen-Mansfield and Werner, 1997). Communication difficulties have also been cited as a correlate of VDB (Nasman *et al*., 1983; Cohen-Mansfield *et al*., 1992; Hallberg *et al*., 1993).

Environmental factors associated with the occurrence of VDB include social isolation (Cohen-Mansfield *et al*., 1990; Cohen-Mansfield

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and Werner, 1995), lack of involvement in activities (Hallberg *et al*., 1990b; Cohen-Mansfield and Werner, 1995), the quality of staff interactions with the resident (Cohen-Mansfield *et al*., 1990; Hallberg *et al*., 1990b, 1993; Cohen-Mansfield and Werner, 1995; Edberg *et al*., 1995) and inadvertent reinforcement of VDB staff (Ryan *et al*., 1988; Cariaga *et al*., 1991).

Most treatment reports describe a specific therapy, for example, electroconvulsive therapy (Carlyle *et al*., 1991; Snowdon *et al*., 1994), pharmacologic treatment (Friedman *et al*., 1992; Kopala and Honer, 1997; Pasion and Kirby, 1993), environmental 'white noise' (Burgio *et al*., 1996), music therapy (Gerdner and Swanson, 1993), validation therapy (Zachow, 1984), the use of behavioural interventions (Baltes and Lascomb, 1975; Christie and Ferguson, 1988), and psychosocial interventions (Doyle *et al*., 1997). While these reports are valuable, many cases of behavioural problems associated with a dementing illness are highly individual and require a tailor-made treatment plan (Bird *et al*., 1998).

Investigations of the characteristics of VDB have indicated that a number of different behaviours, and varying aetiologies are involved (Ryan *et al*., 1988; Cohen-Mansfield and Werner, 1997). However, the same problem behaviour may occur in an individual for different reasons at different times (Hodge, 1984). Cohen-Mansfield and Werner (1997), for instance, found that more than one reason could be attributed to the VDB of individuals participating in their study. When VDB is associated with a multifactorial aetiology, a combination of intervention strategies may be required.

The aim of this paper is to present three cases of VDB of multifactorial aetiology in order to demonstrate the need for a combination of intervention strategies that have been tailored to the individual case.

ASSESSMENT AND INTERVENTIONS

All assessments were initially performed in the nursing home by a psychogeriatrician and/or by a clinical psychologist. Nursing staff were interviewed and family members contacted, if possible. Monitoring of antecedents, behaviour and consequences (ABC) was performed by nursing staff involved in the care of the resident in the nursing home. In one case, when the number of episodes of VDB occurred at the rate of ten episodes or greater per hour, it was considered that criterion for high-frequency VDB had been met. The number of hours per day that this criterion was reached was recorded.

Case 1

A 73 year old woman was well known to the psychogeriatric service after four admissions over a two year period for treatment of major depression and evolving personality change due to a frontal lobe dementia. Her admission to the nursing home had been prompted by the family's inability to cope with her personality and behaviour change. She was referred due to intermittent, but high-frequency VDB, agitation and aggression. There was no evidence of depression. Her most recent cognitive assessment on the Mini-Mental State Examination (MMSE) (Folstein *et al*., 1975), four months earlier was 28/30. Her medication included sertraline and chlormethiazole.

ABC monitoring revealed that the VDB concerned when she was going to eat, receive medications and physical care. Her calls would escalate and lead to verbal abuse and aggression. Her room was opposite the office, near the nursing home entrance. She appeared overstimulated by the busy environment. Nursing staff were inadvertently reinforcing her behaviour by reassurance and verbal reprimands.

VDB appeared to be due to an interaction between an excessive reaction to stimuli, repetitive compulsions associated with frontal lobe disorder and a variable schedule of reinforcement. Nursing staff moved her to a smaller, quieter room. They were asked to ignore her calls once they assured themselves there was no other reason for the VDB. Attention was given contingent on quiet behaviour. After an initial increase in VDB, where on the first day after intervention she was timed over 3 h to be calling every 20 s, the VDB increased (Fig. 1). She continued to call out in the afternoon before the evening meal, but would tell staff that if they closed the door, she would be quiet.

She has been regularly followed up by the psychogeriatric team over the last 2 years. Over this time, the frequency of VDB has increased during episodes of depression and urinary tract infections. An ongoing problem has been that staff have had difficulty tolerating a residual amount of VDB, and as a result have responded with attention and verbal reprimands, which has appeared to exacerbate the problem.

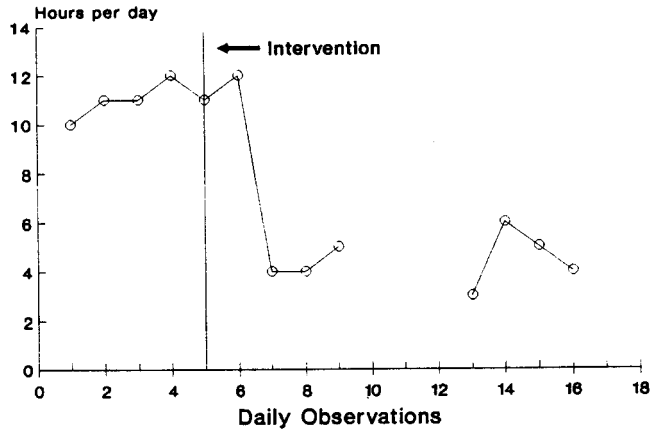

Fig. 1. Number of hours per day during which the criterion measure of $\geqslant 10$ episodes of VDB was met, pre and post intervention

Case 2

A 64 year old woman with probable Alzheimer-type dementia complicatd by psychosis, language impairment and wandering, was treated with risperidone 1 mg nocte. MMSE was 7/30. One month later she developed an acute neck dystonia associated with akathisia, became very distressed and commenced groaning loudly.

The dystonia was initially diagnosed as psychogenic torticollis by a locum general practitioner, but was correctly diagnosed a week later, at which time risperidone was ceased and she was referred to the psychogeriatric service. Meanwhile her groans became constant calls of 'Sister, Sister', she was dysphoric and not sleeping. Treatment with benztropine and diazepam failed to improve either the extrapyramidal disorders or the screams. To prevent falls nursing staff were using restraint which appeared to cause more agitation.

She was admitted to the psychogeriatric unit where monitoring showed that VDB was continuous and ranged from 16 to 22 h (mean = 18.4; SD = 6.3) a day. Her medication was changed to a combination of propranolol, benzhexol and temazapam. Environmental change included the use of restraint only for meals and toileting, regular walks with staff to help reduce the subjective distress of the akathisia, and orientation when physical care was involved. Physiotherapy was commenced for the acute neck dystonia. Over the next two weeks a marked improvement of the akathisia and a reduction in the volume and frequency of the VDB occurred. Restraint was ceased.

Following discharge, the VDB continued as an intermittent low grunting noise which was noted to increase in volume and frequency with physical illness or when she became involved in stressful interactions with other residents. The VDB settled after 2 months, while the dystonia completely resolved after 3 months.

Case 3

A 75 year old woman with Turner's syndrome and a probable Alzheimer-type dementia, was referred with a premorbid history of aggression and the more recent development of non-compliance and VDB. She intermittently called out 'help, help' and 'please', night and day, with such volume that neighbours had made verbal and written complaints. She was uncooperative and MMSE was unable to be performed. Twelve months earlier, however, it was 21/30.

There was evidence of depression with depressed mood, early morning wakening, marked weight loss and decreased appetite. her family were not visiting and she appeared to miss her sister who had recently died. Extrapyramidal side effects (EPSE) of thioridazine meant that she was unable to mobilize without supervision and physical restraint was used to prevent falls. Both EPSE and physical restraint appeared to cause considerable VDB. The thioridazine was stopped, paroxetine commenced and minimal use of restraint was recommended.

ABC monitoring revealed that the VDB was precipitated during physical care and was

reinforced by the pleading and scolding of staff. They were instructed to meet requests if feasible, otherwise to ignore VDB, and to give attention contingent on quiet behaviour. Orientation was used with physical care to reduce the confusion evident in interactions. Her family were also asked to become more involved.

The staff were inconsistently monitoring and having difficulty in implementing the behaviour program. Therefore, no reliable quantitative data is availble. After a series of falls, she was admitted to the psychogeriatric unit. During the 2 week admission, the behavioural program and paroxetine were continued. Observation revealed that due to her short stature, she was unable to safely use standard handrails and furniture, and she was supplied with a child's walking frame and custom made small furniture by her family. Four weeks post discharge she was less agitated and depressed and the staff reported a decrease in VDB. There remained a residual level of VDB which the staff had difficulty accepting, but with support from the psychogeriatric team the improvement was maintained until her death 5 months later.

DISCUSSION

Vocally disruptive behaviour (VDB) is a heterogenous entity which is often very difficult to treat. Several recent studies have emphasized the importance of matching specific interventions to individual cases in order to maximize treatment effectiveness (Bird *et al*., 1988; Cohen-Mansfield and Werner, 1997; Doyle *et al*., 1997). We believe this frequently involves the use of multiple interventions tailored to the individual's needs.

In the cases describd in this paper a multifactorial aetiology was present either in the initial presentation or developed over time. In case 1, an excessive reaction to stimuli and repetitive compulsions associated with a frontal lobe disorder and a variable schedule of reinforcement contributed to VDB. Subsequently, depression and physical illness were associated with an increase in VDB. VDB developed acutely in case 2, and appeared to communicate the discomfort of EPSE (dystonia and akathisia), and agitation due to the use of restraint. While the VDB persisted it was found to increase during physical illness, and in stressful intractions with other residents. A mixed aetiology applied to the VDB present in case 3. This included depression, social isolation, EPSE, restraint, and staff maintaining VDB through reinforcement.

A biopsychosocial assessment provided by a multidisciplinary team was necessary to identify the different aetiologies involved. To assess only environmental or psychiatric variables in these three cases would have been inadequate. When a multifactorial aetiology applies, it is ideal to test the hypotheses in succession until a solution or combination of solutions are found (Hodge, 1984). However, when the variables contributing to VDB interact, or when there are acute medical or psychiatric factors this may be clinically difficult.

In all cases an interaction could be seen between variables. Case 3 is a good example. Social isolation is often associated with depression (Cohen-Mansfield and Werner, 1995). Depression has been associated with VDB (Carlyle *et al*., 1991). When VDB occurs, often the staff respond after a variable number of calls, thereby reinforcing the VDB, and extinguishing the desired behaviour (quietness) (Hussian, 1984). The individual may become more isolated and depressed. These variables are not independent.

It is our experience that when patients have a predominantly depressive and labile affect in association with VDB, a trial of antidepressants is warranted, even when there are insufficient symptoms for a definitive diagnosis of depression. The difficulty of diagnosing comorbid depression in severe dementia has been well documented (Greenwald, 1995). A previous history of major affective disorder may suggest an atypical depression (Carlyle *et al*., 1991). It has been proposed that selective serotonin reuptake inhibitors as used here, may be particularly beneficial in these patients (Greenwald *et al*., 1986).

Hospitalization may be required due to severity of symtoms such as the EPSE present in case 2. Admission to an acute psychogeriatric ward allows for a combination of interventions such as the development of a behavioural program, introduction of appropriate nursing strategies to reduce the effect of secondary disabilities, a review of medical factors and of psychotropic medication as occurred in cases 2 and 3.

After treatment, residual VDB was present in all three cases. This may occur for a number of reasons. First, it is important to take into account changes in cognitive function (Woods and Britton, 1985). In case 1, the VDB apeared to be associated with changes occurring as a result of a frontal lobe disorder. Given the ongoing personality and

behavioural alterations associated with a fronto-temporal dementia, VDB would be expected to continue (Snowden *et al*., 1996).

Next, when cognitive impairment is severe, with associated poor language skills, as in case 2, the VDB may be non-verbal (grunting), but take the form of a language or a communication (Hallberg *et al*., 1993; Cohen-Mansfield and Werner, 1997). When VDB serves a communicative function, it is likely to continue in those individuals who are severely impaired.

Finally, staff expectations that VDB can be eliminated entirely may negatively affect the staff's attitude toward the behavioural program. Much of the work in nursing homes is carried out by untrained staff with little training in behaviour management (Feldt and Ryden, 1992). In cases 1 and 3, staff had difficulty not responding to VDB in the long-term, and a contribution to the residual VDB is thought to have occurred as a result of staff reinforcement.

In conclusion, this paper presents three cases of VDB due to a multifactorial aetiology. Interventions were tailored to each individual case. When there is a multifactorial aetiology a combination of intervention strategies may be required. When it is not possible to return an individual to a premorbid level of function, intervention strategies may require realistic goals that include the acceptance of a residual level of VDB as a reasonable outcome.

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