SHORT REPORT

Psychiatric comorbidity in patients with spasmodic dysphonia: a controlled study

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Objectives: To study the prevalence of psychiatric comorbidity assessed by a structured clinical interview in patients with spasmodic dysphonia (SD) compared with patients suffering from vocal fold paralysis (VFP).

Methods: In 48 patients with SD and 27 patients with VFP, overall psychiatric comorbidity was studied prospectively using the Structured Clinical Interview for DSM-IV Axis I disorders. Physical disability and psychometric variables were assessed with standardised self-rating questionnaires.

Results: 41.7% of SD subjects and 19.5% of the control group met DSM-IV clinical criteria for current psychiatric comorbidity ($p<0.05$). Significant predictors of psychiatric comorbidity in SD were severity of voice impairment and subjective assessment of ''satisfaction with health''. As a limitation, the severity of voice impairment in patients with SD was nearly twice as high, and their illness had lasted nearly twice as long.

Conclusions: We found a high prevalence of psychiatric comorbidity in patients with SD. The significant correlation between current psychiatric comorbidity and the extent of voice pathology may point to an especially strong interaction between somatic and psychiatric complaints in SD.

Adductor spasmodic dysphonia (SD), a chronic voice disorder, leads to a characteristic strained and strangled voice.[1] SD is regarded as a form of primary focal dystonia.[2] The aim of the study was to evaluate the prevalence of psychiatric comorbidity in patients with SD assessed by a structured clinical interview. We hypothesised that psychiatric comorbidity would be significantly higher in such patients than in those suffering from vocal fold paralysis (VFP) resulting from a lesion of the laryngeal nerve after surgery.

METHODS

We studied 50 patients with SD (28 females, 22 males; mean age 57.6 (12.1) years), who were referred for botulinum toxin treatment, immediately before their next injection. Patients with additional neurological disorders, secondary forms of dystonia, including a history of neuroleptics, or with previous head and neck surgery were excluded. The control group were 27 patients with VFP (18 females, nine males) caused by a perioperative lesion of the recurrent laryngeal nerve (mean age 52.9 (12.5) years). The average duration of illness was 11.5 (9.5) years (for SD) and 6.94 (14.3) years (for VCP) ($p<0.001$). All patients gave informed consent. The study was approved by the local ethics committee.

To assess the severity of vocal symptomatology, a sustained vowel ''a'' and a phonetically balanced text (''wind and sun'') were rated blind by seven voice professionals using the Unified Spasmodic Dysphonia Rating Scale.[3] This consists of 14 items, rated separately on a continuous seven point scale. Inter-rater reliability was excellent, between 0.799 (rough voice quality) and 0.955 (overall severity).[4]

The mean overall severity of voice impairment (Unified Spasmodic Dysphonia Rating Scale) was worse in the SD group (3.9 (1.4)) than in the VFP group (2.2 (1.1)). Because of this difference we compared patterns, but not concrete values of psychological impairment and quality of life.

A structured anamnestic interview and a version of the Structured Clinical Interview for DSM-IV (SCID-I)[5 6] was administered. As proposed by others,[7 8] we modified DSM-IV criteria to permit a diagnosis of social phobia if only the ''clinical'' criteria A–G were met.

The Symptom Checklist-90R[9 10] (SCL-90-R) yields an overall index of psychiatric distress, the General Symptomatic Index (GSI), which allows general psychiatric symptoms to be measured continuously.[10]

The Questions on Life Satisfaction (FLZM)[11] is a short questionnaire for assessing general and health related quality of life.

Life events in the 1 year period preceding the initial manifestation of SD were assessed with the short version of the Münchner Ereignis Liste (MEL).[12]

Two patients with SD did not participate in the SCID interview but completed the questionnaires and the voice evaluation.

The relationship between somatic and psychosocial factors and the occurrence/presence of psychiatric comorbidity was analysed using two tailed χ^2 or Student's t tests, when appropriate. Alpha was set to 0.05 (two tailed). In order to investigate the predictors of current psychiatric comorbidity and current social phobia, a stepwise multiple logistic regression analysis with stepwise forward selection was calculated. Odds ratios are presented with 95% CI.

RESULTS

Current and lifetime prevalence rates of Axis I psychiatric disorders are presented in table 1.

Twenty patients with SD (41.7%) had a current psychiatric comorbidity, and 28 (58.3%) had no current SCID diagnosis. Overall current, but not overall lifetime, psychiatric comorbidity was significantly more prevalent in the SD than in the VFP group. There were no significant differences in psychiatric comorbidity in terms of DSM-IV Axis I subcategories.

There were no significant differences between the SD and VFP groups for the SCL-90-R subscales or total score. Mean GSI in patients with SD was 0.44 (0.34) and 0.41 (0.38) in patients with VFP (NS; $p = 0.72$). Compared with a group of 974 healthy persons (mean 0.31 (0.31)), patients with SD were psychopathologically significantly more impaired ($p = 0.007$) but GSI was not significantly different between patients with VFP and healthy controls ($p = 0.12$). However, patients with SD are clearly much less psychologically impaired than psychiatric

Abbreviations: GSI, General Symptomatic Index; OR, odds ratio; SCID-I, Structured Clinical Interview for DSM-IV; SCL-90-R, Symptom Checklist-90R; SD, spasmodic dysphonia; ST, spasmodic torticollis; VFP, vocal fold paralysis

Table 1 Frequency of psychiatric disorders (DSM-IV) in a group of patients with spasmodic dysphonia (n = 48) and vocal fold paralysis (n = 27)

DSM-IV diagnosis	SD current (n (%))	VFP current (n (%))	p Value	SD lifetime (n (%))	VFP lifetime (n (%))	p Value
Mood disorders (total)	7 (14.6)	1 (3.7)	NS	17 (35.4)	6 (22.2)	NS
Major depressive disorder—single episode	1 (2.1)	1 (3.7)	NS	12 (25)	5 (18.5)	NS
Dysthymic disorder	5 (10.4)	0 (0.0)	NS	5 (10.4)	0 (0.0)	NS
Major depressive disorder—recurrent	1 (2.1)	0 (0.0)	NS	2 (4.2)	1 (3.7)	NS
Anxiety disorders (total)	6 (12.5)	2 (7.4)	NS	16 (33.3)	8 (29.6)	NS
Panic disorder with or without agoraphobia	1 (2.7)	1 (3.7)	NS	5 (10.4)	5 (18.5)	NS
Agoraphobia without history of panic disorder	2 (4.2)	0 (0.0)	NS	2 (4.2)	1 (3.7)	NS
Social phobia	4 (8.3)	1 (3.7)	NS	12 (25)	4 (14.8)	NS
General anxiety disorder	1 (2.1)	0 (0.0)	NS	1 (2.1)	0 (0.0)	NS
Alcohol and other substance dependence	2 (4.2)	1 (3.7)	NS	4 (8.3)	2 (7.4)	NS
Adjustment disorders	8 (16.7)	4 (14.8)	NS	13 (27.1)	7 (25.9)	NS
Other	0 (0.0)	0 (0.0)	NS	2 (4.2)	0 (0.0)	NS
No diagnosis	28 (58.3)	22 (81.5)	0.041	20 (41.7)	15 (55.6)	NS

SD, spasmodic dysphonia; VFP, vocal fold paralysis.

outpatients (n = 1002; p<0.001). There are clear differences in self-rated quality of life: compared with the control group, patients with SD showed significantly lower ''general life satisfaction'' (p<0.05) as well as significantly lower ''satisfaction with health'' (p<0.05).

Thirty-two per cent (n = 16) of patients with SD, but only 7.4% (n = 2) of patients with VFP reported a stressful life event in the year before the manifestation of disease. An additional 12% (n = 6) of patients with SD, but no patient with VFP, described a stressful life event in combination with subjective chronic stress. Overall, the SD and VFP groups showed significant differences in remembering incidences of stressful life events during the year before disease (p<0.05).

Forty per cent (n = 20) of patients with SD, but only 22.2% (n = 6) of those with VFP, reported having had psychiatric treatment in the course of SD or VFP (p = 0.102; NS).

There was a significant relationship between the clinical severity of voice impairment in SD, in particular strained–strangled voice quality, and current psychiatric comorbidity (p = 0.003; odds ratio (OR) 41.7). The second significant predictor of current psychiatric comorbidity was ''satisfaction with health'' (FLZ; p = 0.026; OR 15.9). Quality of life in patients with SD was mainly predicted by the subjective variables ''self-rated psychopathology'' (SCL-90-R; p<0.001) and a current close relationship (spouse, partner; p = 0.028).

DISCUSSION

Our study showed that 41.7% of patients with SD, but only 19.5% of patients with VFP, had a current psychiatric diagnosis. Depression, anxiety and adjustment disorders were the prevailing symptoms in both.

Secondly, the main predictor of current overall psychiatric comorbidity was the extent of strained–strangled voice. Regarding quality of life, subjective variables such as self-rated psychopathology (GSI) and living in a close relationship emerged as the most significant predictors.

SD is a serious voice disorder leading to social withdrawal, depression and thoughts of suicide.[13] However, to date, only a few studies have used an empirical method to quantify psychiatric disturbances in SD.

Aronson and colleagues[14] conducted an unstructured psychiatric indepth interview with 29 patients with SD and a self-rating questionnaire, the Minnesota Multiphasic Personality Inventory. Sixty-two per cent of patients showed psychoneurotic symptoms; 38% were evaluated as psychiatrically normal. Comparing the emotional characteristics of 18 patients with SD with those of matched normal controls, patients with SD scored significantly higher on psychometric measures of depression and anxiety.[15]

The level (41.7%) of current psychiatric comorbidity in our patients with SD was higher than has been reported in epidemiological studies on psychiatric morbidity in the general population.[16] Here the overall prevalence (current and lifetime) of psychiatric morbidity was between 29% and 34%.[16] However, compared with the known high levels of psychiatric comorbidity seen in patients with chronic neurological disorders (eg, epilepsy and pseudoepilepsy, migraine (psychiatric comorbidity 65%)[17 18] or Parkinson's disorder[19]), the level in patients with SD seems moderate.

This differentiates our findings in patients with SD from earlier DSM-IV data showing a higher psychiatric comorbidity in more complex dystonias, such as spasmodic torticollis (ST).[8 20]

The most significant predictor of current psychiatric comorbidity in SD was a more ''objective'', expert rated measure of voice impairment (ie, strained–strangled voice quality). This finding is somewhat surprising as a low correlation between the objective severity of a chronic illness and additional psychiatric impairment has been reported in general[21] and specifically for clearly primarily somatic disorders.[22] In a similar study on patients with ST,[8] no significant relationship was found between the objective measures of ST and psychiatric comorbidity. The significant correlation between current psychiatric comorbidity and the extent of voice pathology may point primarily to an adjustment reaction in SD.[15]

Stressful life events before the manifestation of disease were reported to be four times higher in SD than in VFD. This may indicate that although SD is now recognised as a focal movement disorder of the larynx,[23] a special interaction between emotional and/or cognitive stress and the manifestation or exacerbation of dystonic malfunction may occur. A limitation of this controlled study was that the voice disturbance was higher in SD than in VFP patients. However, VFP is a serious debilitating voice disorder, and has been used previously as a control for patients with SD.[24] Thus comparing the results of both groups may provide additional information about the profile of psychiatric impairment in SD.

Thus in one subgroup of patients, proven psychotherapeutic treatment protocols such as cognitive behavioural or psychodynamic/interpersonal therapy focusing on psychiatric comorbidity and coping mechanisms may be needed to help them cope better with this devastating voice disorder.[25]

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REFERENCES

1 **Lundy DS**, Casiano RR, Lu FL, *et al.* Abnormal soft palate posturing in patients with laryngeal movement disorders. *J Voice* 1996;**10**:348–53.
2 **Finitzo T**, Freeman FJ, Devous MD, *et al.* Whether and wherefore: a response to Aronson and Lagerlund. *J Speech Hear Res* 1991;**34**:806–11.
3 **Stewart CF**, Allen EL, Tureen P, *et al.* Adductor spasmodic dysphonia: standard evaluation of symptoms and severity. *J Voice* 1997;**11**:95–103.
4 **Fleiss JL**. *Statistical methods for rates and proportions*, 2nd Edn. New York: John Wiley and Sons, 1981.
5 **Spitzer RL**, Williams JBW, Gibbon M, *et al.* The Structured Clinical Interview for DSM-III-R (SCID). I. History, rationale, and description. *Arch Gen Psychiatry* 1992;**49**:624–9.
6 **Wittchen HU**, Wunderlich U, Gruschwitz S, *et al. Strukturiertes klinisches Interview für DSM-IV, Achse I (SKID)*. Göttingen: Hogrefe, 1997.
7 **Stein MB**, Baird A, Walker JR. Social phobia in adults with stuttering. *Am J Psychiatry* 1996;**153**:278–80.
8 **Gündel H**, Wolf A, Busch R, *et al.* Social phobia in spasmodic torticollis. *J Neurol Neurosurg Psychiatry* 2001;**71**:499–504.
9 **Derogatis LR**. *SCL-90-R. Administration, scoring and procedures manual.* Baltimore: John Hopkins University, Clinical Psychometrics Research Unit, 1977.
10 **Franke G**. *SCL-90-R. Die Symptom-Checkliste von Derogatis – Deutsche Version.* Göttingen: Beltz Test, 1995.
11 **Henrich G**, Herschbach P. Questions on life satisfaction (FLZ)—a short questionnaire for assessing subjective quality of life. *Eur J Psychol Assessment* 2000;**16**:150–9.
12 **Maier-Diewald W**, Wittchen HU, Hecht H, *et al. Die Münchner Ereignisliste (MEL) – Anwendungsmanual.* Munich: Max-Planck-Institut für Psychiatrie, 1983.
13 **Aronson AE**, Lagerlund TD. Neuroimaging studies do not prove the existence of brain abnormalities in spastic (spasmodic) dysphonia. *J Speech Hear Res* 1991;**34**:801–5.
14 **Aronson AE**, Brown JR, Lintin EM, *et al.* Spastic dysphonia. 1. Voice, neurologic and psychiatric aspects. *J Speech Hear Disord* 1968;**33**:203–18.
15 **Cannito MP**. Emotional considerations in spasmodic dysphonia: Psychometric quantification. *J Commun Disord* 1991;**24**:313–29.
16 **Wittchen HU**, Essau CA, Zerssen D, *et al.* Lifetime and six-month prevalence of mental disorders in the Munich Follow-Up Study. *Eur Arch Psychiatry Clin Neurosci* 1992;**241**:247–58.
17 **Blumer D**, Montouris G, Herrmann B. Psychiatric morbidity in seizure patients on a neurodiagnostic monitoring unit. *J Neuropsychiatry Clin Neurosci* 1995;**7**:445–56.
18 **Guidetti V**, Galli F, Fabrizi P, *et al.* Headache and psychiatric comorbidity. Clinical aspects and outcome in an 8-year follow-up study. *Cephalalgia* 1998;**18**:455–62.
19 **Lauterbach EC**, Freeman A, Vogel RL. Differential DSM III disorder prevalence profiles in dystonie and Parkinson's disease. *J Neuropsychiatr Clin Neurosci* 2004;**16**:29–36.
20 **Wenzel T**, Schnider P, Wimmer A, *et al.* Psychiatric comorbidity in patients with spasmodic torticollis. *J Psychosom Res* 1998;**44**:687–90.
21 **Herschbach P**, Henrich G. The significance of objective determinants for the subjective quality of life. *Psychosom Med* 1998;**60**:113–14.
22 **Stein MB**, Heuser IJ, Juncos JL, *et al.* Anxiety disorders in patients with Parkinson's disease. *Am J Psychiatry* 1990;**147**:217–20.
23 **Blitzer A**, Lovelace RE, Brin MF, *et al.* Electromyographic findings in focal laryngeal dystonia (spastic dysphonia). *Ann Otol Rhinol Laryngol* 1985;**94**:591–4.
24 **Smith E**, Taylor M, Mendoza M, *et al.* Spasmodic dysphonia and vocal fold paralysis: outcomes of voice problems and work-related functioning. *J Voice* 1998;**12**:223–32.
25 **Guze SB**, Brown OL. Psychiatric disease and functional dysphonia and aphonia. *Arch Otolaryngol* 1962;**76**:84–7.