Psychopathology Reprint, Vol. 18, No. 4 (pp. 198–200), 1985

Dexamethasone Suppression Test and Subcategories of DSM-III Major Depression

Toshinori Kitamura, Satoru Shima,
Tatsuo Shikano, Shojiro Kano, Masahiro Asai,
Hitoshi Itoh

KARGER

Medical and Scientific Publishers
Basel · München · Paris · London · New York · New Delhi · Singapore · Tokyo · Sydney

Printed in Switzerland

Psychopathology
Editors: P. Berner, Wien; E. Gabriel, Wien

Reprint
Publisher: S. Karger AG, Basel
Printed in Switzerland

Psychopathology *18:* 198–200 (1985)

0254–4962/85/0184–0198$2.75/0

Dexamethasone Suppression Test and Subcategories of DSM-III Major Depression

Toshinori Kitamura[a], *Satoru Shima*[b], *Tatsuo Shikano*[b], *Shojiro Kano*[c], *Masahiro Asai*[b], *Hitoshi Itoh*[b]

[a] Division of Psychogeriatrics, National Institute of Mental Health; Departments of [b] Neuropsychiatry and [c] Clinical Endocrinology, School of Medicine, Keo Gijuku University, Tokyo, Japan

Abstract. Among 37 patients with DSM-III major depression, the nonsuppression rate of the dexamethasone suppression test was significantly higher in patients with recurrent and melancholic major depression (83%) than in those with single episode and/or nonmelancholic major depression (31%).

Introduction

Ample evidence has accumulated in the past decade demonstrating that a group of patients with depressive illness has abnormalities in the hypothalamic-pituitary-adrenal axis. The dexamethasone suppression test (DST) has attracted particular attention as a biological marker of depression since it has high specificity and sensitivity [*Carroll* et al., 1981]. *Carroll* [1982] has maintained that DST can be used as a measure to detect patients with 'melancholia'. His use of the term 'melancholia', however, differs from that in DSM-III.

Only a few investigators have reported the abnormal DST response rate exhibited by DSM-III melancholia patients, with contradictory results. Thus *Jaffe* et al. [1983] found a significantly higher abnormal DST rate in patients with melancholia as compared with those without melancholia, whereas *Evans and Numeroff* [1983] and *Evans* et al. [1983] and *Coryell* et al. [1981] found no significant difference between those with and without DSM-III melancholia.

These studies have only investigated the DST response in relation to melancholia as the DSM-III subclassification of major depression in terms of current symptomatology. None of them cast light on another subclassificatory system, single episode versus recurrent major depression. We here report a preliminary study on the interaction of these two DSM-III subcategories, using DST as a parameter.

Methods

The DST was administered to 37 patients who met the DSM-III criteria for major depression and who were rated 15 or over using the 21-item Hamilton Rating Scale for Depression [*Hamilton,* 1960]. Patients were excluded if they met the medical exclusion crite-

ria of DST proposed by *Carroll* [1982]. The sample patients were 11 men and 26 women, 9 inpatients and 28 outpatients, aged between 19 and 76 years with a mean age of 50.0 ± 14.3 years. Although the patients' mean age was relatively high, none of them was recognized as demented according to the criteria of the DSM-III. Most of them were taking antidepressant medication, while a few were on low-dose antipsychotics. None were on lithium. Informed consent was obtained from all subjects participating in the study.

Since we have found that the sensitivity of DST to DSM-III major depression among Japanese patients can be substantially raised when the dexamethasone dose is reduced from 1 to 0.5 mg [unpublished data], the latter dose was given orally at 11:00 p.m.; venous blood samples were obtained from the antecubital vein at 4:00 p.m. the following day and were frozen at −20 °C until the serum cortisol levels were determined by a radioimmunoassay. Nonsuppression was defined as a serum cortisol level greater than 5 μg/dl.

Results

Of the 37 patients in this study, 19 (51%) had major depression with melancholia, 18 (49%) had major depression without melancholia, 12 (32%) had recurrent major depresison, 25 (68%) had single episode major depression.

The rate of nonsuppression was slightly higher in patients with melancholia (9 out of 19; 47%) than in patients without melancholia (6 out of 18; 33%). The nonsuppression rate was similarly higher in patients with recurrent major depression (7 out of 12; 58%) than in patients with single episode major depression (8 out of 25; 32%). These differences did not reach statistical significance.

When the two subclassificatory systems were combined so as to yield four subcategories, it was found that the nonsuppression rate went up remarkably to 83% (5 out of 6) only in patients with recurrent and melancholic major depression. The other three subcategories showed low and almost identical nonsuppression rate. Thus 2 out of 6 patients (33%) with recurrent and nonmelancholic major depression, 4 out of 13 patients (31%) with single episode and melancholic major depression and 4 out of 12 patients (33%) with single episode and nonmelancholic major depression were nonsuppressors. The difference between the nonsuppression rate of the recurrent and melancholic major depression group and the nonsuppression rate of the other three groups combined was of statistical significance (one-tailed Fisher's exact probability test, $p < 0.05$).

The total score of Hamilton's Rating Scale for Depression (± SD) was identical in both groups, 24.8 ± 5.0 for recurrent and melancholic major depression and 22.8 ± 8.5 for the other major depressions, nor was the mean age significantly different between the recurrent and melancholic major depression group (55.7 ± 12.8) and the other major depression (48.9 ± 14.5) group.

Discussion

The present study has demonstrated a striking difference in the DST results of patients with recurrent and melancholic major depression and patients with single episode and/or nonmelancholic major depression. This difference cannot be attributed to any differences in the severity of the illness, since the total score of Hamilton's Rating Scale for Depression did not differ significantly between the two groups.

We have used a 0.5-mg DST in this study. A recent multinational study [*Coppen* et al., 1984] has demonstrated a lower abnormal DST response rate using 1 mg dexametha-

sone among Japanese depressed patients than among those of Western countries. Furthermore, the use of a small dose may not interfere with the validity of this study because the purpose was to determine whether the DST could differentiate among subcategories of DSM-III major depression and not merely prove that the DST was diagnostic for it.

The inconsistency found in the literature on the DST results of patients with and without melancholia may be explained by the proportion of the recurrent and melancholic subgroup within the whole major depression population in each study.

Carroll et al. [1981] reported a sensitivity as high as 67% for their 'melancholia' patients. These authors' 'melancholia' was regarded as synonymous with the conventional 'endogenous' type of depressive illness. A likely traditional diagnosis is 'endogenous' depression when a patient has had specific symptoms, previous episodes followed by clear remissions, adequate premorbid personality, a lack of precipitants, or a positive family history. It has already been demonstrated that the rate of DST nonsuppression is higher in depressive patients with a family history of affective disorders than in those without [*Schlesser* et al., 1980].

We are therefore tempted to speculate that those patients who meet DSM-III criteria for both recurrent major depression and melancholia make up a biologically homogeneous subgroup of major depression and that this subgroup is psychopathologically similar to the 'melancholia' of *Carroll*.

Although no firm conclusion can be reached because of the preliminary nature of this study, the present findings seem promising to provide clinical correlates with DST nonsuppression of depressive illness within the framework of DSM-III.

Acknowledgement

The authors thank Prof. *H. Hosaki* for his guidance.

References

Carroll, B.J.: The dexamethasone suppression test for melancholia. Br. J. Psychiat. *140:* 292–304 (1982).

Carroll, B.J.; Feinberg, M.; Greden, J.; Tarika, J.; Albala, A.A.; Haskett, R.F.; James, N.McI.; Kronfol, Z.; Lohr, N.; Steiner, M.; de Vigne, J.P.; Young, E.: A specific laboratory test for the diagnosis of melancholia. Archs gen. Psychiat. *38:* 15–22 (1981).

Coppen, A.; Metcalfe, M.; Harwood, J.; Wood, K.: WHO collaborative study on the use of the dexamethasone suppression test as a biological indicator of depressive illness. Clin. Neuropharmacol. *7:* 226–227 (1984).

Coryell, W.; Gaffney, G.; Burkhardt, P.E.: DSM-III melancholia and the primary-secondary distinction – a comparison of concurrent validity by means of the dexamethasone suppression test. Am. J. Psychiat. *139:* 120–122 (1982).

Evans, D.L.; Burnett, G.B.; Numeroff, C.B.: The dexamethasone suppression test in the clinical setting. Am. J. Psychiat. *140:* 586–589 (1983).

Evans, D.L.; Numeroff, C.B.: Use of the dexamethasone suppression test using DSM-III criteria on an inpatient psychiatric unit. Biol. Psychiat. *18:* 505–511 (1983).

Jaffe, K.; Barnshaw, H.D.; Kennedy, M.E.: The dexamethasone suppression test in depressed outpatients with and without melancholia. Am. J. Psychiat. *140:* 492–493 (1983).

Hamilton, M.: A rating scale for depression. J. Neurol. Neurosurg. Psychiat. *23:* 56–62 (1960).

Schlesser, M.A.; Winokur, G.; Sherman, B.M.: Hypothalamic-pituitary-adrenal axis activity in depressive illness. Its relationship to classification. Archs gen. Psychiat. *37:* 737–743 (1980).

T. Kitamura, MD,
Section of Mental Health for the Elderly,
Division of Psychogeriatrics,
National Institute of Mental Health,
1-7-3, Konodai, Ichikawa,
Chiba 272 (Japan)