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DEXAMETHASONE SUPPRESSION TEST IN AFFECTIVE AND OTHER PSYCHIATRIC DISORDERS

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ABSTRACT

The dexamethasone suppression test (DST) was administered to 59 patients with major affective disorders and 19 with other psychiatric disorders. The combinations of two dexamethasone doses (1 mg vs 0.5 mg) and two cortisol criterion levels (5 μg/dl vs 4 μg/dl) were adopted. The highest sensitivity (43%) was found with 0.5 mg DST at the 4 μg/dl criterion level for Major Depression. Our study failed to distinguish Melancholia in DSM III.

Key Words: depression, dexamethasone

INTRODUCTION

Recent advances in psychoneuroendocrinology have confirmed that the overnight dexamethasone suppression test (DST) is useful in diagnosing endogenous depression. Its method and the diagnostic criteria were standerized by Carroll *et al.*.[1] We have previously reported the unexpected low sensitivity of DST using 1 mg dexamethasone.[2]

The present study was to modify the doses and cortisol criterion levels of Carroll *et al.*'s method in order to raise the sensitivity of DST among Japanese psychiatric patients.

SUBJECTS

Seventeen inpatients and 61 outpatients were examined. Their diagnoses were established by applying the criteria of DSM III.[3] Of these 78 patients, 56 were classified as major depression, 3 bipolar disorder (now in depressive episode), 6 dysthymic disorder, 3 atypcial depression, 6 schizophrenic disorder, 1 schizophreniform disorder, 1 schizo-affective disorder and 2 atypical psychosis (Table 1). Those who fulfilled exclusion criteria of Carrol *et al.* were carefully excluded. Every subject gave informed consent prior to the investigation. A part of the present examination has already been reported elsewhere.[2]

Table 1
Diagnostic groups, sex distribution and ages

	Total	Male	Female	Age, yrs (Mean±SD)
Major Depression	56	17	39	47.5±13.7
Bipolar Disorder	3	0	3	38.0±18.2
Other Affective Disorders	9	1	8	56.6± 9.4
Schizophrenic Disorder	6	2	4	33.5± 9.4
Psychoses Not Elsewhere Classified	4	3	1	39.0±11.6

METHOD

All subjects were administered either 0.5 mg (n=38) or 1 mg (n=40) dexamethasone per os at 11:00 p.m. Blood samples for postdexamethasone cortisol levels were obtained only at 4:00 p.m. the following day. Serum cortisol levels were measured in duplicate with a radioimmunoassay. Sensitivity and specificity were calculated for each dose and criterion level. The term "sensitivity" indicates the proportion of depressed patients with abnormal DST response, while the term "specificity" the proportion of nondepressed patients with normal DST response.

RESULTS

Table 2 shows DST results in various psychiatric patients with non-suppression defined as 5 μg/dl or over. Of the 56 patients with major depression, 38% (0.5 mg DST) and 11% (1 mg DST) were non-suppressors. One patient with bipolar disorder showed a positive finding. One schizophrenic patient and one with atypical psychosis were, however, also non-suppressors.

We then compared the result of 0.5 mg DST with that of 1 mg DST; the

Table 2
Frequency of abnormal DST results (cut-off: 5 μg/dl)

	% Abnormal DST	
	0.5 mg (N)	1 mg (N)
Major Depression	38 (29)	11 (27)
Bipolar Disorder	0 (1)	50 (2)
Other Affective Disorders	0 (2)	0 (7)
Schizophrenic Disorder	33 (3)	0 (3)
Psychoses Not Elsewhere Classified	33 (3)	0 (1)

N: total number

Table 3
Sensitivity and specificity in major depression and bipolar disorder using 0.5 mg and 1 mg DST

		Sensitivity (%)	Specificity (%)
0.5 mg DST	≧4 μg/dl	43	63
	≧5 μg/dl	37	75
1 mg DST	≧4 μg/dl	24	100
	≧5 μg/dl	14	100

criterion value of 5 μg/dl and that of 4 μg/dl were also compared.

Table 3 shows the sensitivity and the specificity induced by 0.5 mg and 1 mg DST at the 4 μg/dl or 5 μg/dl criteria level. DST with 0.5 mg of dexamethasone at the 4 μg/dl criteria level shows the highest sensitivity but the lowest specificity.

In addition, the differences of the responses to the DST were compared between depressed patients with and without melancholia combining 1 mg and 0.5 mg DST at the 5 μg/dl criterion level. Seven of 24 (29%) patients with melancholia were non-suppressors; 7 of 32 (22%) patients without melancholia were non-suppressors. The incidence of non-suppression was somewhat higher in patients with melancholia than in patients without melancholia, though the difference was not significant.

DISCUSSION

In our study the sensitivity of DST for the diagnosis of major depression is lower than that in previous reports.[1] Firstly, our subjects were mostly out-patients and therefore might be mildly depressed.[4] Secondly, all subjects were given single sampling DST.[5] These factors could have influenced our results.

From our findings it seems better to modify Carroll *et al.*'s method and diagnostic criteria, when DST is applied to Japanese patients, particularly those attending outpatient clinics. The sensitivity of 1 mg DST with a cut-off level of 5 μg/dl was too low in diagnosing major affective disorder. DST (1 mg) with 4 μg/dl criterion was found to increase the sensitivity from 14% to 24%. DST with 0.5 mg of dexamethasone load with 5 μg/dl criterion could show a much higher sensitivity (37%) than 1 mg DST, though the specificity decreased. DST (0.5 mg) with 4 μg/dl criterion gave the highest sensitivity (43%) and the lowest specificity (63%). Although our sample was too small to lead to a firm conclusion, 0.5 mg DST with 4 μg/dl criterion was considered to serve at least as a screening measure for outpatients with DSM III Major Depression. Examining 9 depressive patients, Sarai *et al.*[6] also suggested that a low dose (0.5 mg) DST might be preferable to identify major depression.

In our study the subclassification of major depression failed to be validated. Coryell *et al.*[7] also failed to validate this subtype of major depression, while the studies by Evans *et al.*[8] and Jaffe *et al.*[9] were able to confirm the validity of this classification. Further study is necessary to determine the validity of DSM III subclassification of major depression.

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