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# Normal Dexamethasone Suppression Test in Obsessive-Compulsive Disorder

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The dexamethasone test (DST) has been proposed as a "specific laboratory test for the diagnosis of melancholia" (Carroll *et al*, 1981). It is agreed that many depressed patients have abnormal DSTs and that in general, these abnormalities return to normal as the patient recovers from depression, but less agreed are the clinical characteristics of those depressed patients with dexamethasone resistance (abnormality). Although discrepant findings have been reported, it is in general the more "biological" categories of depression such as endogenous depression, bipolar depression, and delusional depression in which abnormal results have been reported (Checkley 1985; Carroll *et al*, 1981).

To be of diagnostic value, the DST must be more common in depression than in conditions with which depression can be confused; in this respect, it is unfortunate that dexamethasone resistance has been found in some, though not all studies of dementia and schizophrenia.

It may be that the DST is of greater value in the differentiation of depression from neurotic disorders. Normal DST results have been reported in patients meeting DSM III (1980), criteria for "panic

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disorder" and agoraphobia (Curtis *et al*, 1982; Lieberman *et al*, 1983; Sheehan *et al*, 1983). The distinction between depression and obsessive-compulsive disorders is of particular clinical significance.

Obsessive-compulsive symptoms are common in depression (Lewis, 1934; Gittleson, 1966; Kendall & Discipio 1970), as are depressive symptoms in obsessive-compulsive disorders (Marks *et al*, 1980; Lewis 1966: Rosenberg 1968; Goodwin *et al*, 1969). In addition, antidepressants are useful for obsessive-compulsive disorders (OCD) when anxious and depressed mood (dysphoria) is present (Marks 1983). If OCD and depression are independent, and if the DST is indeed a marker for depression, then OCD patients with normal mood should suppress normally, while those with "endogenous" depression should escape suppression. In one study, among 16 patients with OCDs, the DST was positive in six (37%), but five of the six had high Hamilton Depression scores (above 20), while the remaining patients had been recently depressed (Insel *et al*, 1982). Cottraux *et al*, (1984) found that 30% of 20 OCD patients had abnormal DSTs, and that these patients did not differ in their Hamilton Depression scores from those with a normal DST. Asberg (1983) found 50% of "escapers" in a sample of patients with obsession compulsive disorders.

## Method

*The sample*. We report here the result of the DST in 61 patients with OCDs on DSM III Criteria. To qualify, patients should have had the problem for at least one year, be in the age range 18–59, have no history of psychosis, and agree to stop all previous psychotropic medication including benzodiazepines, beta blockers, and alcohol for at least three weeks before the test (benzodiazepine use may normalise plasma cortisol response to dexamethasone (Langer *et al*, 1979).

To clarify whether or not uncomplicated OCD is associated with an abnormal DST, we analysed such patients complicated by other factors known to produce such abnormality separately from cases without such complications. Examples of complications associated with an abnormal DST are major depression (two patients in our series), medical illness or alcoholism (two of our patients turned out to have cancer and one alcoholism) and current anorexia nervosa (AN) with low weight (Doerr *et al*, 1980; Gerner & Gwirtsman 1981); we had one such patient). We also had four patients with a *past* history of AN; our first patient to have unsuppressed DST had a clear past history of AN, present normal weight and eating habits, and absence of other factors known to produce this. We therefore decided to examine: (a) the frequency of a past history of AN in OCD and (b) the effect of such a history on the DST. We chose to analyse results of the latter patients together with those who had complications known to be associated with anormal DST.

### *Procedure*

*Dexamethasone test:* Patients were asked to take two tablets of dexamethasone, i.e. 1 mg at 11.30 p.m. At 4.00 p.m. the following day, 10 mls of blood were drawn and placed in a heparinised tube. This was centrifuged for ten minutes and the plasma placed in a glass tube and frozen immediately.

*Analysis of plasma cortisol*: Plasma cortisol was analysed by a radioimmunoassay method using the Amerlex cortisol kit. According to Wood *et al*, (1983), this gives results which are comparable to those obtained by the CIS International method. Based on normative data obtained from the latter method, we adopted a cut-off of 138 n.mols/lit (5 mg/–dl) as the upper limit of a normal 4 pm post-dexamethazone cortisol value.

### *Measures*

All clinical measures were made long before results of plasma or urine analysis became available.

a) *Compulsive checklist: 37 0–3 items (total score range 0–111):* a self-rated broadscan measure of rituals.

b) *Beck depression inventory* (BDI) (Beck *et al*, 1974): 13 items, range 0–39, self rated.

c) *Wakefield depression inventory* (Snaith *et al*, 1971): score range 0–45, self-rated.

d) *Hamilton depression scale* (Hamilton 1969) items 1–17, score range 0–52, assessor-rated.

e) *Demographic data:* past history—family history.

f) *Semi-structured depression interview* Schedule for affective disorders and schizophrenia (Spitzer *et al*, 1978).

g) *Urine test* for alcohol and psychotropic drugs.

## Results

### *Clinical characteristics*

*Obsessive-compulsive scales:* 61 patients were diagnosed as having severe obsessive-compulsive disorder on DSM 111 and ICD 9 criteria. They scored a mean of 35 (SD 21.4) on the compulsive checklist.

*Depression scales:* The patients were not depressed as a group, with normal mean scores of 14 (SD 7.1) on the BDI and of 9.5 (SD 6.0) on the Hamilton depression scale, but had raised Wakefield depression inventory scores—a mean of 24 (SD 6.8). On the Research diagnostic criteria (Spitzer *et al*, 1978) only two patients qualified for a definite diagnosis of major depression, four had possible major depression, and seven qualified for a diagnosis of minor depression. Correlations (Pearsons product-moment) were 0.80 for the Hamilton v Beck ($n = 61$), 0.79 for the Beck v Wakefield ($n = 50$) and 0.71 for the Hamilton v Wakefield ($n = 50$) (all $P < 0.001$). None of these scores correlated significantly with the plasma cortisol levels of the DST.

*Patients' characteristics:* Mean age was 32 (SD 9.9). The patients had been ill for an average of 12 (SD 8.8) years, and mean age of onset was 20 years. There were 30 men (11 married, 2 divorced) and 31 women (15 married, five divorced, three widowed). Of the 61 patients, 41 checked

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excessively, 39 washed excessively, and 40 ruminated excessively. Most had more than one of these problems. Only three patients had a family history of treated obsessive-compulsive illness, 12 of treated depression, and three of unspecified but treated psychiatric illness, six had close relatives with depression.

*Other drugs:* All patients were asked to abstain from drugs and alcohol for three weeks preceding the test. A urine test done at the time of the DST showed that our patients were free of psychotropic drugs and alcohol, except for three, who were on 75 mg, 100 mg, and 200 mg of tricyclic antidepressant per day.

*Other pathology*: Among our sample of 61 patients with obsessive-compulsive disorder, four had a past history of AN (of whom two also occasionally abused alcohol, although not at the time of the DST) and one was anorexic but much improved when seen. One patient abused alcohol, another was a permanent night worker and so had probable altered diurnal rhythm, and over the next six months two of the remaining patients were discovered to have cancer, requiring surgery. Two had definite major depression. This left 49 patients without any of these complications or definite major depression.

*Dexamethasone suppression test*

Forty-eight of our 50 uncomplicated cases of OCD suppressed cortisol normally.

Among the 11 remaining patients, two suppressed normally, and nine escaped suppression. Of the two patients with definite major depression, one suppressed normally and one escaped suppression. The four patients with a past history of AN escaped suppression; they were eating normally, and did not appear anorexic either at the time the DST was performed or over the next few months. The one with ongoing AN escaped suppression. Of the two patients who were discovered to have cancer in the following months, one suppressed normally (uterine cancer) and one escaped suppression (seminoma of testis). The patient who worked night-shifts escaped suppression, as did the patient with alcohol abuse.

After six months, the DST was repeated in 20 patients. The 15 who had previously suppressed normally remained suppressed, and five who were unsuppressed remained unsuppressed.

## Discussion

Only two out of our 50 uncomplicated cases of OCD failed to suppress cortisol (4%), in marked contrast to 37% and 50% respectively of the obsessive similar patients of Insel *et al*, (1982) and of Asberg (1983), or the 50% rate usual in melancholia. Cottraux *et al*, (1984) found that 30% of 20 OCD cases had abnormal DSTs, and that these patients did not have different Hamilton depression scores from those with normal DST scores. Two factors may explain these differences: (1) the co-existence of depression and OCD in other samples, e.g. a mean of 17 on the 17-item Hamilton in Cottraux' sample, indicating moderate depression, compared to a mean score of 9.5 in our sample. Rabkin *et al*, (1983) found that 18% of even mildly to moderately depressed patients may escape suppression; and (2) the possibility that some patients in other series with higher rates of anormal DSTs had similar complications to some of ours, e.g. a past history of AN, which as we have found, is not uncommon in obsessive-compulsive disorder.

Reports of occasional abnormal DST in anxiety disorders (Williams *et al*, 1983, Sheenan *et al*, 1983) might be explained by the common association with such problems as varying degrees of depressed mood, alcohol abuse, or past history of AN. Among reports of uncomplicated agoraphobia with panic, all 17 patients of Curtis *et al*, (1982) and all ten patients of Lieberman *et al*, (1983) suppressed normally.

We examined depressed mood carefully in this sample, using a semi-structured interview and three depression scales. On two of the three measures of depression our sample showed normal mood. On the third, the Wakefield, high scores could be produced by anxiety as well as depression. Only two of our patients had a definite diagnosis of major depression, and very few had a family history of depression or of OCD. All except three of our sample had been free of psychotropic drugs for three weeks before the DST.

Most anorexics have a positive DST (Gerner & Gwirtsman 1981) that usually reverts to normal after feeding to 80% of their ideal body weight (Gwirstman & Gerner, 1981). Four of our patients (8%, or 16% of the females) had a history of *past* AN; unexpectedly, all these four escaped from suppression, in spite of apparent current normal weight and eating habits. This obviously needs to be investigated further, and has to be accounted for in further studies of the DST.

It would be of interest to present data on DST findings in future studies of OCD and of other diagnostic categories in a similar way. Some studies in which abnormal test results are reported in non-depressed patients make little or no reference to such associated conditions. Our data suggest that in the case of OCD, the DST is normal unless there are other complications associated with its abnormality.

In conclusion—patients with OCD had a normal DST unless they were complicated by alcoholism, depression, a history of anorexia nervosa, cancer, or a reversed diurnal rhythm. Of the female obsessive-compulsive patients, 16% had had AN.

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