

## DST IN THE COURSE OF POST STROKE DEPRESSION

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### SUMMARY

The dexamethasone suppression test was administered to five patients with post-stroke depression, at initial evaluation and also in follow-up. It showed parallel results to clinical course of depression in four out of five patients.

Depression following stroke has been recognized as a common and potentially serious complication (Agarwal et al., 1987; Robinson et al., 1984). It is a reversible and treatable condition and effectiveness of imipramine in treatment of depression after stroke has been shown (Agarwal et al., 1986). Initially there have been some problems in diagnosis of post-stroke depression (Feibel et al., 1979), but recently an abnormal dexamethasone suppression test (DST) response, a robust biological characteristic of depression (WHO Collaborative Study, 1987) has been shown to be useful (Agarwal et al., 1987; Finklestein et al., 1982; Lipsev et al., 1985). Its role in follow-up of these patients and monitoring the progress of patients is not clear.

### MATERIAL AND METHODS

The study comprised of five right handed patients of thromboembolic stroke, of more than three weeks duration (Table I). After detailed general and neurological examination, these patients were evaluated for associated depression. The patients were asked about depressed mood (feeling of sadness and hopelessness), anxiety, frustration, crying and weeping spells. Enquiries were also

made about vegetative (sleep and appetite) disturbances. These were scored on four point scale as nil (0), mild (1), moderate (2), and severe (3).

An overnight DST was administered to the patients in ward. One milligram of dexamethasone (Wymesone) was given at 2300 hours and plasma samples were obtained at 1600 h and 2300 h the following day. Plasma cortisol was measured by radioimmunoassay in the Department of Endocrinology, CDRI, Lucknow. The DST was considered positive if the 1600 or 2300 cortisol level was more than 5.0 µg/dl (Carroll et al., 1981). All the patients were medically stable at the time of DST. None was in the process of acute withdrawal from alcohol and none had active infection, fever, uncontrolled diabetes mellitus or any other factor known to produce false positive or false negative DST (Carroll et al., 1981).

Patients in whom clinical diagnosis of depression was made and DST was positive (Pt. No. 1 to 3) were kept on imipramine, initially in low doses (25-50 mg at bedtime) and later its dose was increased to 75 mg (Pt. No. 1 and 3) and 10 mg (Pt. No. 2). Patients were followed up after every two weeks. Repeat DST was done in first three patients

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after 4-6 weeks of imipramine treatment. In rest two patients repeat DST was done when follow-up evaluation (four and six months after stroke respectively) showed evidences of depression which was absent at initial examination.

## RESULTS

The details of five stroke patients studied are given in Table II. While DST in the course of patient No. 1 and 3 became normal after clinical improvement in depression, it continued to be abnormal in patient No. 2 in whom the depression has not much responded clinically also. He was later given higher dose of imipramine (150 mg/day) and responded to it. The consent for repeat DST was not given this time. Out of the remaining two patients, who were found to have moderate to severe disturbance of mood and vegetative functions in follow-up,

repeat DST was positive in one patient (No. 4) only.

## DISCUSSION

It has been shown that almost one-third of stroke patients show evidences of depression (Agarwal et al., 1987; Robinson et al., 1984). Moderate sensitivity and specificity of DST has also been reported for post-stroke depression (Agarwal et al., 1987; Lipsey et al., 1985). But the reports about its value in follow-up of these patients are scanty. We could get the mention of only two patients in literature available to us where repeat DST was done in follow-up (Finklestein et al., 1982). It was found to be parallel to the clinical course.

In this study DST responses were found to be parallel to clinical course in four out of five patients. One of our patient who showed evidence of moderate depression in

TABLE I. Characteristics of patients

Sl. No.	Age (Yrs.)	Sex	Hemispheric Involvement	Time since stroke (Days)	Severity of weakness
1.	35	M	Lt	28	Moderate
2.	45	M	Lt	65	Mild
3.	65	M	Lt	74	Severe
4.	55	F	Lt	42	Moderate
5.	47	M	Rt	104	Moderate

TABLE II. DST and post-stroke depression

Sl. No.	Initial Evaluation		Initial DST	Follow-up Evaluation		Repeat DST
	Depressed mood	Vegetative disturbance		Depressed mood	Vegetative disturbance	
1.	3	0	+ve	1	0	-ve
2.	3	3	+ve	2	3	+ve
3.	3	2	+ve	1	0	-ve
4.	1	1	-ve	3	2	+ve
5.	0	1	-ve	2	2	-ve

0=None, 1=Mild, 2=Moderate, 3=Severe

follow-up showed negative DST. He was having right hemispheric stroke which has been found to be less commonly associated with positive DST (Agarwal et al., 1987).

The DST response in the course of major depression has not been consistent. Paselow et al. (1987) has reported a study of 73 patients of major depression. He found that only 27.4% patients had abnormal DST during depression and normal DST after recovery. Percentage of patients who had abnormal and normal DSTs both the times was 8.2 and 58.9 respectively. But they reported significantly higher post-dexamethasone plasma cortisol levels during depression as compared to that after recovery. Yerevanian et al. (1983) have also demonstrated strong correlation between improvement in depression and reduction in post DST cortisol level. Albala et al. (1981) reported normalization of DST in all the five (out of six) patients of depression who responded to electroconvulsive treatment.

The DST in the course of depressive illness has been shown to be of prognostic value as well. In DST positive depressed patients undergoing treatment, a repeat DST at discharge discriminated effectively between a good and poor outcome group (Bowie et al., 1987; Greden et al., 1983). Those patients who had persistent abnormal DST even after apparent clinical recovery are more likely to relapse than those in whom DST normalizes (Greden et al., 1980; Paselow et al., 1987; Schweitzer et al., 1987; The APA Task Force on Laboratory Tests in Psychiatry, 1987). The prognostic usefulness of serial DSTs is to be evaluated in post stroke depression with long term follow-up. We could repeat DST in only a small number of patients because of many reasons. One of these was requirement of patient's admission in ward at least for 2 days because of odd timings of test (2300 h). If one can do with only 1600 plasma cortisol level, DST can be done at OPD level in a greater popula-

tion of patients. Of course, it will reduce the sensitivity of test (Carroll et al., 1981).

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