

## Tardive Dyskinesia and Abnormal Tongue Movements

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**Summary:** Forty-two subjects, 20 with and 22 without clinically diagnosed tardive dyskinesia (TD), were rated for TD on the scale of Simpson *et al.* They also performed a tongue protrusion test and had the presence of tongue movements within the buccal cavity observed. Fifty per cent of the severe or definite TD subjects as classified by rating scale were unable to maintain tongue protrusion for a minimum of 30 seconds, and 85 per cent of them had abnormal tongue movements. In 45 per cent of the possible TDs and in 9 per cent of the doubtful subjects, the movement test was also positive.

The problem of tardive dyskinesia (TD) continues to present difficulties, both theoretical and practical. Not least of these difficulties has been that of defining 'a case'. Various scales have been developed for rating tardive dyskinesia, but as yet no one characteristic sign has appeared sufficient to make the diagnosis (Gardos *et al.*, 1977; National Institute of Mental Health, 1975; Simpson *et al.*, 1979). However, various groups of signs, particularly those affecting the mouth, tongue and lips, the so-called buccolingual masticatory (BLM) syndrome—are often considered key or core signs of this disorder, but it is also considered that these signs appear mainly when the disorder is well advanced (American College of Neuropsychopharmacology, 1973). Earlier signs such as blinking of the eyes, or facial twitching may exist but are non-specific, occurring in a variety of other disorders, e.g., Huntington's Chorea, Parkinson's disease, Wilson's disease, and even in normal subjects.

Two other signs have received some attention: (1) the presence of abnormal movements of the tongue within the buccal cavity, and (2) the inability of the subject to maintain the tongue outside the buccal cavity for a certain minimal period of time. The former has been described in a variety of different ways: in particular, the notion of 'vermiform movements' has been ill-defined. A more detailed description of abnormal movements within the buccal cavity has been given by Simpson *et al.* (1979). In addition, it has been reported that patients with tardive dyskinesia are unable to maintain the tongue outside the buccal cavity 'for more than a few seconds' (Ayd, 1978).

The tongue protrusion test has not become a standard part of the examination in TD, although it is useful in Huntington's chorea (American Psychiatric Association, 1979). The present study investigates

these signs in a group of subjects known to have the disorder, and others at risk for the disorder.

### Patient Selection

Patients were in-patients on two psychogeriatric and two acute treatment wards. Those who agreed to participate in the study were screened clinically for dyskinetic movements. Any patients with an organic brain syndrome likely to cause dyskinetic disorders unrelated to neuroleptics were excluded from this study. All the patients had received neuroleptics for more than 6 months at some time during their treatment course, and most of them were taking neuroleptics when this study was conducted.

Twenty subjects who at interview exhibited gross dyskinetic movement of mouth or extremities were selected first. Subsequently, 22 subjects at risk who exhibited no gross abnormal movement were selected. An attempt was made to match the patients with obvious TD with the patients without obvious TD for sex, age, and length of hospitalization. Of the 42 patients, 24 were women and 18 were men, ages ranging from 18 to 88 years, with a mean of 51.4 years (men 48.3, and women 53.7 years). The 20 subjects with obvious TD had a mean age of 53 and the 22 subjects without obvious TD had a mean age of 50. They had a diagnosis of schizophrenia ( $n = 23$ ), manic depressive illness ( $n = 9$ ), organic brain syndrome ( $n = 9$ ) and other ( $n = 1$ ).

### Method

To evaluate the severity of TD in the two groups, subjects were assessed on the abbreviated scale of Simpson *et al.* (1979), but with an adjustment of the severity score range from 0–4, where 0 was absent and 1, 2, 3, and 4 represented mild, moderate, marked or

severe. The scale rates seven items, e.g., lip movements, tongue protrusion, choreoathetoid movements of the extremities etc, with a possible severity index of 28. Akathisia was also rated on a 0-4 point scale, and considered a separate item.

Subjects with a total score of greater than 9 from the 7 items of the Simpson scale were considered as definite tardive dyskinesias, those between 4 to 8 as possible, and those with 3 or less as doubtful or absent. In addition, any subject who had a rating of 4 in any one of the seven items was further classified as severe tardive dyskinesia.

Movements of the tongue within the buccal cavity, as described in the extended rating scale by the same authors (Simpson *et al*, 1979), were scored present or absent. An activation procedure was employed, consisting of tapping the thumbs against the middle fingers, to enhance this sign. In addition, the subjects were rated by a research assistant (who was blind to the initial grouping of the subjects) for the length of time they could keep the tongue extended beyond the buccal cavity. A cutoff point of 30 seconds was used, i.e., if the subject could maintain the tongue outside the buccal cavity for 30 seconds as measured by stop watch, he/she had passed the test.

## Results

According to the rating scale classification, four subjects had severe, 16 definite, 11 possible, and 11 doubtful TD. Ten subjects failed to maintain the tongue protrusion for 30 seconds: 4 of the 4 severe, 6 of the 16 definite; none were included in the possible or doubtful categories, ( $\chi^2 = 21.33$ ;  $P < 0.001$ ).

Abnormal movements of the tongue inside the buccal cavity were present in 23 subjects: all 4 of the severe, 13 of the 16 definite, 5 of the 11 possible and 1 of the 11 doubtful cases of TD ( $\chi^2 = 17.48$ ;  $P < .01$ ). No subject who had a rating of 2 or less had this sign present. Percent of abnormal tongue tests for the subjects is shown in Fig 1.

## Discussion

It would appear that the inability to maintain tongue protrusion as described is present with a high frequency (50 per cent) in patients with definite or severe TD. However, in many of these cases the disorder was obvious from casual observation, and the absence of this sign in what could be considered early TD rules out any great merit of this test in the early diagnosis of tardive dyskinesia. Abnormal tongue movements within the buccal cavity was present with high frequency (85 per cent) in the severe and definite TDs, and was also present in almost 50 per cent

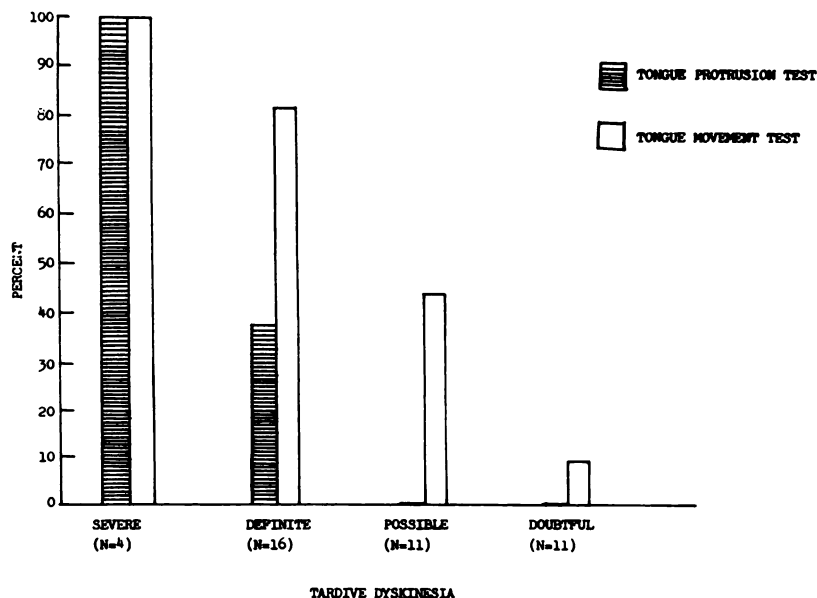


FIG 1

of the possible TDs. This suggests that, while the tongue protrusion test is a measure of severity, present mainly when TD occurs in an advanced form, abnormal movements within the mouth occur over a much wider range of severity, supporting the view (Simpson and Lee, unpublished, 1976) that such tongue movements may prove a more helpful sign for the early detection of TD.

A controlled prospective study of the evolution of TD in subjects with initial mild abnormal tongue movements is needed to confirm this finding. A possible bias existed in the present study because the rater was also involved in the preselection of the patients.

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