

## SHORT REPORT

## Factors that ameliorate or aggravate spasmodic torticollis

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### Abstract

**A sample of 72 patients with adult onset torticollis were asked to complete a checklist to indicate how a list of situations and activities affected the severity of their torticollis. Stress and self consciousness were reported as aggravating factors by more than 80% of the sample, whereas walking, fatigue, and carrying objects were noted as exacerbators by over 70% of the patients. For more than 40% of the sample, torticollis improved in the supine position, by relaxation, sleep, and lying on the side. However, the last four factors also worsened the head deviation in 16% to 25% of the patients. Use of a "geste antagoniste" to maintain the head in the body midline, was reported by 64 (88.9%) of the patients, which was still effective in correcting head position in 47%. The sensitivity of torticollis to social and emotional factors can be best explained in terms of a possible link between extrapyramidal and affective disorders through overlapping changes in catecholamine metabolism. The worsening of torticollis with peripheral motor activity (walking, running, writing) or its improvement with changes in body posture or with the geste antagoniste is best viewed in terms of alterations of peripheral proprioceptive feedback or central corollary discharge provoked by the motor output or command.**

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From clinical observation, a host of situational and behavioural factors have been noted to improve or exacerbate the head deviation or involuntary head movements in torticollis.<sup>1-4</sup> The effects of specific factors such as stress, tactile and proprioceptive stimulation, or postural change on neck EMG recordings in torticollis has been examined by several investigators.<sup>5-9</sup> The results of these studies are contradictory. Patterson and Little<sup>10</sup> and van Hoof *et al*<sup>11</sup> also reported their findings on the changes in torticollis with various situational or behavioural influences in a relatively few patients (17 cases in the study of van Hoof *et*

*al*<sup>11</sup>), or a non-homogeneous sample (Patterson and Little<sup>10</sup>).

Many patients with torticollis develop and use "tricks" to reduce or eliminate the abnormal head posture. These tricks are called "geste antagoniste". An example of a geste antagoniste is the patient moving a hand to touch his chin or the back of his neck, a movement that will effectively straighten the head position. The mechanism of action of the geste antagoniste is unknown. At various times in the history of torticollis, the geste antagoniste has been considered as confirmatory evidence for the hysterical nature of the illness,<sup>12</sup> whereas at other times its mechanism of action has been interpreted in various physiological terms.<sup>5 6 13</sup>

The absence of consistent results across the studies that have examined the effect of various factors on the severity of torticollis may partly be related to differences in sample characteristics. Given the heterogeneous nature of the disorder, the influence of situational and behavioural factors can only be reliably assessed in a large and homogeneous sample of patients with torticollis. This was the aim of the present study.

### Method

#### SUBJECTS

The sample consisted of 72 cases of adult onset idiopathic torticollis (35 men and 37 women). The sample was homogenous in several respects. Firstly, all cases were idiopathic as those with secondary torticollis were excluded. Secondly, for all patients torticollis had been the initial presenting symptom. Thirdly, the sample was limited to cases with adult onset torticollis, with onset after the age of 20. The mean age of onset of torticollis was 43.5 (SD 10.3) years, with a mean duration of illness of 7.7 (SD 5.9) years. The mean age was 51.2 (SD 10.4) years. Torticollis had remained focal in 49 cases (68.1%), and had spread to other parts of the body in 23 patients (31.9%). Forty patients (55.6%) had pure retrocollis. In the remaining 25 patients (34.7%), the head deviation was a combination of turn/tilt and forward flexion or backward extension. Torticollis was clonic in 52 (72.2%) and tonic in 20 (27.8%) of the patients.

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Table 1 The factors that improved, aggravated; or had no effect on torticollis and the percentage of patients reporting each effect

Factor	%Worse	% Unchanged	% Better
Exacerbating factors:			
Stress	85.1	14.9	0.0
Self consciousness	84.8	12.1	3.0
Walking	74.6	18.3	7.0
Fatigue	74.2	21.2	4.5
Carrying objects	73.1	22.4	4.5
Writing	68.7	26.9	4.2
Running	61.5	19.2	19.2
Social situations	58.6	31.0	10.3
Emotion	55.6	41.3	3.2
Time of day:			
Afternoon	50.8	37.7	11.5
Evening	53.1	34.4	12.5
Cold	53.1	45.3	1.6
Ameliorating factors:			
Lying on back	21.0	25.8	53.2
Relaxation	23.5	29.4	47.1
Sleep	25.4	28.8	45.8
Lying on side	16.1	38.7	45.2
Geste antagoniste	0.0	53.0	47.0
Factors with no effect:			
Menstrual cycle			
Menstrual	25	68.7	6.3
Intermenstrual	18.8	68.7	12.5
Premenstrual	37.5	62.5	0
Heat	19.0	55.6	25.4
Alcohol	29.4	52.9	17.6
Distraction	16.4	44.3	39.3
Time of day			
On awakening	31.7	36.5	31.5

#### PROCEDURE

From a survey of the literature and direct questioning of a sample of 10 patients with torticollis, a list of common factors affecting the severity of the head deviation or movements was compiled. This "effect of stimuli" checklist was completed by 72 patients participating in a study on the natural history and the psychosocial sequelae of the illness. Patients were asked to indicate the extent to which their torticollis was affected by various situational and behavioural factors, by ticking the appropriate response column. The response columns were: worse, unchanged, better, or don't know. The patients were also asked to indicate whether they had ever used a geste antagoniste to normalise head position, and if so, whether it was still effective.

#### Results

The factors that were reported by the patients to improve, or exacerbate, or have no effect on their torticollis are presented in the table, together with the percentage of the patients who noted each effect (better, unchanged, worse). The association between the direction or form of head deviation and the reported effect (better, unchanged, worse) was not significant for any of the factors considered.

#### Discussion

The present results are in general agreement with previous studies.<sup>4 10 11</sup> In the present larger and more homogenous sample of patients with adult onset idiopathic torticollis, there is a greater consensus on the factors that exacerbate torticollis. Stress and self consciousness were reported as aggravating factors by more than 80% of the sample, whereas walking, fatigue, and carrying objects were noted as exacerbators by over 70% of the patients. For

more than 40% of the sample, torticollis improved in the supine position, by relaxation, sleep, and lying on the side. However, the last four factors also worsened the head deviation in 16% to 25% of the patients. Use of a geste antagoniste to maintain the head in the body midline, was reported by 64 (88.9%) of the patients, which was still effective in correcting head position in 47%.

The effect of three factors on torticollis are of special interest: different phases of the menstrual cycle, alcohol, and morning relief. Menstrual phase related worsening of their disorder has been noted in female patients with Parkinson's disease,<sup>14</sup> and dominantly inherited myoclonic dystonia.<sup>15</sup> The greatest proportion of the premenopausal women in this sample reported no change in their torticollis during the different phases of the menstrual cycle, although worsening of torticollis in the premenstrual and menstrual phases of the cycle was respectively noted by 37.5% and 25%.

The present results on the effect of alcohol on torticollis are not consistent with the findings of Biary and Koller<sup>16</sup> who reported improvement in head deviation in five of seven patients with torticollis (71%) after an intravenous injection of ethanol. In the present sample, alcohol was reported as an ameliorating factor only by 17.6%. In fact, alcohol aggravated the head deviation in 29.4% of the patients, and had no particular effect for most (52.9%). Differences in methodology may be partly responsible for the divergent results of the two studies.

A class of dystonia with marked diurnal variation characterised by freedom from dystonic movements and postures in the morning and worsening of dystonia in the afternoon and evening has been described by Segawa *et al.*<sup>17</sup> Improvement or relief from torticollis on awakening in the mornings was experienced by 31.5% of the present sample of patients with adult onset idiopathic torticollis. The relation of this to the subclass of dystonia with diurnal variation of Segawa *et al.*<sup>17</sup> which is often coupled with features of parkinsonism and responsiveness to levodopa, bromocriptine, or anticholinergic drugs<sup>18</sup> remains unclear.

The sensitivity of torticollis to social and emotional factors and motor and postural influences has in the past been regarded as evidence for the psychogenic origin of the disorder. We have previously provided evidence<sup>19-21</sup> against a psychogenic aetiology in torticollis. Instead, we have suggested an alternative formulation that views the depression encountered in a proportion of the patients as a reaction to the disability and social embarrassment associated with the postural disfigurement.<sup>22-25</sup> Similarly, with regard to factors that exacerbate or ameliorate torticollis, although the precise mechanisms are unknown, such influences are now subject to alternative and more plausible interpretations in biochemical or physiological terms. The exacerbation of torticollis in affect or stress inducing situations can be explained in terms of a possible link between extrapyramidal and affective disorders through overlapping

changes in CNS catecholamine metabolism.<sup>26</sup> Similarly, the worsening of torticollis with peripheral motor activity (walking, running, writing), or its improvement with changes in body posture (supine position), or with the geste antagoniste is best viewed in terms of alterations of peripheral proprioceptive feedback or central corollary discharge provoked by the motor output or command. Although feasible, these alternative interpretations are also speculative and require direct examination through further investigation.

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