Toronto Western Spasmodic Torticollis Rating Scale (Delphi)

TWSTRS-Delphi

(Motor Severity section, as designed by Delphi panel, and originally described in Comella et al. 2015 MDCP, Comella et al. 2016 Mov Disord)

Patient or ID: _____

DOB: _____

Examiner: _____

Date examined: _____

Video rater: _____

Date rated: _____

Rate maximal excursion for items 1-8

This section has rating items for the amplitude of *maximal* excursion with patients allowing their head and neck to assume the spontaneous abnormal posture, without opposing the movement, and during the maneuvers indicated by the videotape examination protocol. Maximal excursion may occur in the resting (baseline) position, or it may occur with activities, such as walking. The angle of movement is determined for each axis of head movement, shifting of the neck on the shoulders in a forward or backward direction, and shoulder movement. In scoring each item, it is important to score only for that particular posture. For example, the score for rotation would only include the degree of horizontal deviation separate from the other components of movement observed.

For each item, full range is considered the range that a normal person without cervical dystonia could achieve at maximal effort in a particular direction. If a rating lies between scores, the greater score is marked. Fractional or decimal scores are not allowed.

1. Rotation. Rotation is defined as turning of the chin to the right or left. Movement of the chin from the midline to right or left is best seen in frontal view. In mid-position, the chin is positioned directly over the sternum, midway between the attachments of the clavicles. Rotation is scored by the greatest degree of deflection from mid-position.	
None	0
Slight (less than 25% full range; 1 - 22 degrees off midline)	1
Mild (25 - 50% of full range; 23 - 45 degrees off midline)	2
Moderate (50 - 75% of full range; 46 - 67 degrees off midline)	3
Severe (greater than 75% of full range; 68 - 90 degrees off midline)	4

2. Laterocollis. Laterocollis refers to the angle of tilting of the head to the right or left regardless of any shoulder elevation. The maximum deviation of actual tilt is the score to be recorded. A technique for determining head tilt is to draw a line between the eyes or the ears and compare this line to the horizontal plane. It is important to distinguish laterocollis (head tilt) from lateral shift, which is scored separately in Item #5	
None	0
Slight (less than 25% full range; 1 - 22 degrees of tilt)	1
Mild (25 - 50% of full range; 23 - 45 degrees of tilt)	2
Moderate (50 - 75% of full range; 46 - 67 degrees of tilt)	3
Severe (greater than 75% of full range; 67 - 90 degrees of tilt)	4

3. Anterocollis. Anterocollis refers to flexion of the head, with the chin moving towards the chest. The angle of the chin from horizontal plane as seen on the lateral (profile) view is a useful indicator for flexion. It is important to separate flexion/extension of the head on the neck from anterior and posterior shift of the neck on the shoulder in the mid-saggital plane, which is scored separately in Item #6.	
None	0
Slight downward deviation of chin (less than 25% full range)	1
Mild downward deviation of chin (25 - 50% of full range)	2
Moderate downward deviation (50 - 75% of full range)	3
Severe (greater than 75% full range)	4

4. Retrocollis. Retrocollis is the extension of the head, with the chin moving upwards. The angle of the chin from horizontal plane as seen on the lateral view is a useful indicator for extension. It is important to separate flexion/extension of the head on the neck from anterior and posterior shift of the neck on the shoulder in the mid-saggital plane, which is scored separately in Item #6.	
None	0
Slight backward deviation of vertex with upward deviation of chin (less than 25% full range)	1
Mild backward deviation of vertex with upward deviation of chin (25 - 50% of full range)	2
Moderate backward deviation with upward deviation of the chin (50 - 75% of full range)	3
Severe backward deviation with upward deviation of the chin (greater than 75% full range)	4

5. Lateral shift. Lateral shift is defined as the shifting of the head/neck on the shoulders to the right or left. Lateral shift is best evaluated from a frontal view using the sternum as the midline mark. It is important to distinguish lateral shift from laterocollis (head tilt), which is scored separately in Item #2.	
None	0
Slight shift to one side	1
Mild shift to one side	2
Moderate shift to one side	3
Severe shift to one side	4

6. Sagittal shift. Sagittal shift refers to anterior or posterior shifting of the entire neck in a forward or backward direction on the shoulders. Sagittal shift is best evaluated in the lateral (profile) view, using the trunk as the midline. It is important to distinguish sagital shift from anterocollis or retrocollis, which involve tilting of the chin up or down and are scored separately in Items #3-4.	
None	0
Slight shift to forward or backward	1
Mild shift to forward or backward	2
Moderate shift forward or backward	3
Severe shift forward or backward	4

7. Head Tremor. This item assesses the presence and severity of head tremor. It includes both a duration and severity aspect for each rating. The tremor may occur in any axis of direction. The score for head tremor should reflect its occurrence throughout the exam, and should be assessed from both frontal and lateral views.	
Absent	0
Slight (amplitude less than 2 cm and present less than 50% of the exam)	1
Mild (amplitude less than 2 cm and present more than 50% of the time OR amplitude 2-4 cm but present less than 50% of the exam)	2
Moderate (amplitude 2-4 cm and present more than 50% of the time OR amplitude more than 4 cm and present less than 50% of the exam)	3
Severe (amplitude more than 4 cm and present more than 50% of the exam)	4

8. Shoulder involvement. This item addresses the severity of elevation or anterior displacement of the shoulder, as well as a duration factor for the shoulder. Shoulder elevation is best evaluated from a frontal or posterior view. Anterior or posterior displacement of the shoulder is best viewed from a lateral or profile view.	
Absent	0
Slight (less than 2 cm from normal position for less than 50% of the exam)	1
Mild (less than 2 cm from normal position for more than 50% of the time OR 2-4 cm from normal position for less than 50% of the exam)	2
Moderate (2-4 cm from normal position for more than 50% of the time OR more than 4 cm from normal position for less than 50% of the exam)	3
Severe (more than 4 cm from normal position for more than 50% of the exam)	4

9. Duration. Duration is determined during the course of the entire examination and includes an assessment of head movement in any direction. This assessment includes shoulder involvement and tremor. It consists of two components: (a) the percentage of time during the entire examination that head deviation is present AND (b) the relative intensity of the head deviation during the examination (e.g. when present during the session, the head deviation was most often submaximally or maximally present). The duration of shoulder movement is not considered in this category, but is rated below in another section.	
None	0
Occasional deviation (less than 25% of the time), either maximal or submaximal	1
Intermittent deviation (25 - 50% of the time) either maximal or submaximal OR Frequent deviation (50 - 75% of the time), most often submaximal	2
Frequent deviation (50 - 75% of the time), most often maximal OR Constant deviation (greater than 75% of the time), most often submaximal	3
Constant deviation (greater than 75% of the time), most often maximal	4

10. Sensory tricks. A sensory trick is defined as a touch or other movement that influences the severity of the abnormal movements. This item evaluates the degree of improvement when a sensory trick is used. If the patient is unaware of any sensory trick, a trial of touching the cheek, back of the head, or leaning against a wall should be suggested. The improvement in abnormal movements must last at least 5 seconds following application of the trick. If the duration is less than 5 seconds, the score is 4.	
Complete improvement of posture by one or more tricks	0
Moderate improvement of posture by one or more tricks	1
Mild improvement of posture by one or more tricks	2
Minimal improvement of posture by one or more tricks	3
No improvement of posture by one or more tricks	4

11. Range of motion. This item assesses the ability to move from the abnormal posture through the midline to the extreme opposite position without the aid of sensory tricks. Range of motion is assessed for each of the three axes of movement: horizontal rotation, flexion/extension, and lateral tilting. The score for the most severely limited direction of movement is the final range of motion score. If limitation occurs in more than one plane of motion, use the highest score.	
Able to move to extreme opposite position	0
Able to move head well past midline but not to extreme opposite position	1
Able to move head barely past midline	2
Able to move head toward but not past midline	3
Barely able to move head beyond abnormal posture	4

12. Time in midline. This item assesses the ability of the patient to hold the head within 10 degrees of the midline (normal) head position without sensory tricks. Obtaining midline position is done by verbal direction and marks the start of the time measure. The maximum trial period for each attempt is 60 seconds. If limitation occurs in more than one plane of motion, use the score that is highest. If the patient cannot reach midline, the score is 4.	
Normal (head at midline for greater than 60 seconds)	0
Slight impairment (head at midline for 46 - 60 seconds)	1
Mild impairment (head at midline for 31 - 45 seconds)	2
Moderate impairment (head at midline for 16 - 30 seconds)	3
Severe impairment (head at midline for less than 15 seconds)	4

Total Motor Severity Score	
Total score is the sum of each of the items (maximum score is 48)	