

Effective Maneuver of the Positional Test: Turning Head and Body Together

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Abstract: We performed three maneuvers of the positional test in supine patients: (1) *body maneuver*, in which patients turned only the body to one side while keeping the head as still as possible; (2) *head-only maneuver*, in which patients turned only the head to one side while keeping the body still; and (3) *head and body maneuver*, in which patients turned the head and body together to one side. The nystagmus provocation rates of those three maneuvers among 86 vertiginous patients were 9% in the body maneuver, 16% in the head-only maneuver, and 33% in the head and body maneuver, respectively. We proved that performing the positional test by turning the head and body together is very effective in provoking positional nystagmus.

Key Words: neck torsion; nystagmus; otolith stimulation; positional test; provocation rate; somatic sensations

In Japan, performing the positional test by having a subject turn only the head is used most frequently [1]. However, Stoll et al. [2] stated that the positional test in which the head and the body of the subject are turned together to one side is more sensitive than the test in which only the head is turned. Our aim was to find the most effective maneuver in the positional test that is useful in daily practice.

PATIENTS AND METHODS

We recruited for our study 86 consecutive vertiginous patients aged 20–79 years (mean age, 52.6 years; SD, 14.1) who had visited Hokuso Shiroy Hospital from November 2004 to May 2005. Of these 86 patients, 16 were male and 70 female. None of the patients had spontaneous nystagmus with eyes open in darkness under electronystagmographic recording. They underwent three maneuvers of the positional test. The primary position of patients was supine on a bed in darkness with eyes open and covered by goggles. Patients moved the head or body (or both) by themselves under

verbal instruction from an examiner. First, patients turned only the body to the right, back to supine, then to the left, while keeping the head as still as possible—the *body maneuver*. Second, patients turned only the head to the right, back to supine, then to the left—the *head-only maneuver*. Finally, patients turned the head and body together to the right, back to supine, then to the left—the *head and body maneuver*. Patients remained in each position for 1 minute. A 3-minute interval was inserted between the maneuvers.

RESULTS

The data of 86 patients (16 males and 70 females, aged 20–79 years; mean, 52.6 ± 14.1 years) were qualified for the study. The nystagmus provocation rates of the three maneuvers were 9% (8 cases) in the body maneuver, 16% (14 cases) in the head-only maneuver, and 33% (29 cases) in the head and body maneuver. The provocation rate of the head and body maneuver was significantly higher than that of the other two maneuvers ($p < .01$).

DISCUSSION

We proved that the nystagmus provocation rate of the head and body maneuver was significantly higher as compared to that of the body maneuver and the head-only

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maneuver, despite the fact that the maneuver may be influenced by the habituation of nystagmus. We attribute this difference in outcome mainly to the stronger otolith stimulation in the head and body maneuver, as the head can be turned 90 degrees to one side in this maneuver, a position that is difficult to obtain in the head-only maneuver.

We also attribute the efficacy partly to the effect of turning the body. Of 8 patients who showed positional nystagmus in the body maneuver, only 2 showed nystagmus in the head-only maneuver. If the positional nystagmus in the body maneuver was caused by neck torsion, the nystagmus should also appear in the head-only maneuver [3]. Therefore, we suspect that the nystagmus resulting from the body maneuver was provoked not only by neck torsion but by the effect of body turning. In turning the body, cutaneous, visceral, and proprioceptive sensations of the body change as does the proprioceptive sensation of the neck. We think that those changes in somatic sensation intensify the otolith afferent to the central vestibular system.

For daily practice in treating vertiginous patients, we highly recommend, on the basis of our findings, the positional test performed by turning a patient's head and body together, because the provocation rate is high

and it can be performed safely even in patients with neck injury.

CONCLUSION

The nystagmus provocation rate seen in the positional test by turning a patient's head and body together was significantly higher than that of the positional test by turning only the head or the body of the patient. We attributed the effectiveness of the combined maneuver to the stronger otolith stimulation as the head of the patient can be turned approximately 90° to one side. In addition, we suspected that the turning of the body may have contributed to the test's effectiveness, as the proprioceptive, visceral, and cutaneous sensations changed with turning of the body.

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