

## LETTER

## Subjective visual vertical in patients with benign positional paroxysmal vertigo

Dear Editor,

The site of peripheral vestibular lesion determined by the subjective visual vertical of gravity (SVV) in patients with benign positional paroxysmal vertigo (BPPV) is not well specified. According to some authors<sup>1-3</sup>, no correlation between the side of the lesion and the perceived tilt in BPPV was found; in other studies, SVV tilt occurred in BPPV in the affected side, but in some BPPV patients this happened towards the unaffected one<sup>4,5</sup>, or is normal<sup>5,6</sup>.

In the study we conducted, we found that in all 40 enrolled patients diagnosed with BPPV, the SVV was abnormally increased to the affected side within 72 hours from the symptoms onset; the mean SVV was 5.75° (1.11) and this was statistically significant ( $p < 0.001$ ) compared to the mean SVV of the control group ( $0^\circ \pm 2^\circ$ ). To determine SVV, the bucket method was used. Immediately after therapeutic maneuvers, SVV in all patients demonstrated a statistically significant decrease in comparison to the time of diagnosis but still remained in abnormal values. In the follow-up one week later, all patients finally normalized their SVV. Thus, according to presented results, SVV can safely assume the affected labyrinth at the time of diagnosis showing the deviation towards the dysfunctional site.

The pathophysiologic basis of SVV deviation to the affected side is not well understood. SVV depends on the otolithic organs with somatosensory and visual signals. One could presume that in BPPV the more the otoconia mass detaches from the utricle and enters the semicircular canals the more intense the BPPV clinical symptoms present. A greater absence of otoconia mass in the otolithic membrane generates minor stimulation in the crista receptors and greater SVV deviation to the affected side. SVV reduction after maneuvers is due to return of the debris to the utricle.

The need for a rehabilitation period for SVV reinstatement in normal range suggests that particles progressively attach in order to fully incorporate in the whole mass of otoconia in the otolithic membrane. Finally, restoration of otoconia into otolithic organs normalizes SVV.

**Keywords:** Benign positional paroxysmal vertigo, BPPV, subjective visual vertical

**Conflict of interest**

Authors declare no conflict of interest.

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