Effect of Vestibular Suppressant for Residual Symptoms after Successful Canalith Repositioning Procedures in Benign Paroxysmal Positional Vertigo: Randomized Controlled Trials

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Abstract
The aim of this study was to investigate the characteristics of residual symptoms and to evaluate the effects of adjuvant vestibular suppressants on residual symptoms after successful CRPs. One hundred and fifty patients with idiopathic BPPV were included in this study. All subjects were divided into three groups after successful CRP: the medication (V) group (treated with a vestibular suppressant [dimenhydrinate 50 mg per day], the placebo (P) group and the no medication (N) group. One week after the positional nystagmus disappeared, all patients were repeated DHI questionnaires for comparing residual symptoms. The presence of residual symptoms was more prevalent in the P and N group compared with the V group (p=0.035 and p=0.017, respectively). The most frequent residual symptom was lightheadedness (n=42). Moreover, in the V group, lightheadedness was significantly reduced compared with the P group (p=0.029) and tended to be reduced compared with the N group (p=0.066). However, in the analysis of DHI, total and subscale scores did not differ across the three groups before or after successful CRP. Vestibular suppressants significantly reduced residual symptoms compared to a placebo and no medication after CRP. However, there was no significant reduction in DHI score compared with the control group, suggesting that the residual symptoms could not be evaluated by DHI score alone.

Methods and Materials
One hundred and fifty patients of idiopathic BPPV were participated in this study. All participants were diagnosed by video-nystagmography (VNG) and Dizziness Handicap Inventory (DHI) questionnaires were completed before CRPs. All subjects were divided into three groups after successful CRPs; Medication (V) group was treated with vestibular suppressant (dimenhydrinate 50mg per day), placebo (P) group and no medication (N) group. One week after, all patients were performed follow up VNG for recurrence and repeated DHI questionnaires for comparing residual symptoms.

Results
All participants regardless of groups showed significant symptom improvement after successful CRPs. But, among 150 patients, 76 patients complained residual symptom even after successful CRPs. Presence of residual symptoms is more prevalent in P or N group comparing with V group. (p=0.048, p=0.03, respectively) Most frequent characteristics of residual symptoms were lightheadedness or mild headache. (n=36) However, in the analysis of DHI, total and subscale scores of DHI were not different between three groups before and after successful CRPs.

Discussion
Even though successful CRPs, some patients complained about residual symptoms. Previous studies reported that prevalence of residual dizziness were 36.6–61%. Our study showed that 57% of patients who received successful CRPs without any additional medication (N+group) complained residual dizziness. There was a few study about characteristics of residual symptoms after successful CRPs. Our study showed that most common character of residual symptoms was lightheadedness that was complained by 47.3% of patients. Next common symptoms were floating sense and faintness. Vestibular suppressant group has significantly smaller number of patients with residual symptoms after CRPs than the placebo or no medication groups in DHI scores. Especially, there was substantial improvement in lightheadedness or floating sense in vestibular suppressant group. We could not prove the reason. But, according to hypotheses of residual symptoms, temporary vestibular function defects in affected ear can exist in BPPV patients. Thus, vestibular suppressant could be helped to reduce their symptoms through recovery period as like mild vestibular neuritis. Also, because remained very tiny otolith which cannot induce positional nystagmus after successful CRPs, vertigo could not presented but only lightheadedness or floating sense could be presented at follow up period.

Conclusions
Our study demonstrated that vestibular suppressant (dimenhydrinate) after CRPs may help to reduce residual symptoms in patients with BPPV. Most common residual symptoms were lightheadedness. But there was no significant difference of DHI score than placebo or no medication because residual symptom is difficult to assess as the DHI score.

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References