

SUCCESS OF THE MODIFIED EPLEY MANEUVER IN BENIGN PAROXYSMAL POSITIONAL VERTIGO

Mustafa Deniz YILMAZ¹, Oktay ÖZEL¹, Orhan Kemal KAHVECİ¹

¹ Afyon Kocatepe University, Faculty of Medicine, Department of Otolaryngology-Head & Neck Surgery

ÖZET: Benign paroksizmal pozisyonel vertigo (BPPV), KBB hekimleri tarafından sık karşılaşılan bir durumdur. Epley tarafından tariflenen kanalit repozisyon manevrası BPPV’da etkili tedavi yöntemi olabilir.

Şubat 2001 ve Mayıs 2002 tarihleri arasında Afyon Kocatepe Üniversitesi KBB kliniğinde BPPV tanısıyla takip ve tedavi edilen 21 hasta toplam 23 kulak retrospektif olarak incelendi. Hastalara, hikayeleri alınarak ve Dix-Hallpike manevrası uygulanarak BPPV tanısı konuldu. Hastalara modifiye Epley manevrası uygulandı, 48 saat boyunca dik durmaları ve ani kafa hareketlerinden kaçınmaları gerektiği anlatıldı. Hastalar 1 haftalık periyotlarla Dix-Hallpike manevrası ile takip edildiler. Eğer semptomlar sebat ederse manevralar maksimum 4 defa olmak üzere tekrar edildi. Hastaların ortalama yaşı 56,8 idi ve %33’ü erkek hastaydı. 11 (%52) hastada sol kulak, 8 (%38) hastada sağ kulak ve 2 (%9.5) hastada her iki kulak etkilenmişti. İlk manevra sonrasında 2 (%9.5) hastada, ikinci manevra sonrası 6 (%28.5) hastada, üçüncü manevra sonrası 7 (%33.3) hastada ve dördüncü manevra sonrası 5 (%23) hastada semptomların tamamen düzeldiği görüldü. Bir (%4) hasta manevradan hiçbir fayda görmedi. Sadece 1 hastada eşlik eden bir patoloji mevcuttu. Ortalama takip süresi 5.2 aydı ve bu süre içinde hiçbir nüks görülmedi.

Modifiye Epley Manevrası, BPPV tedavisinde kolayca uygulanabilen, güvenilir ve etkili bir tedavi metodudur.

[Anahtar Kelimeler: Vertigo, pozisyonel, koklea, otolitler]

ABSTRACT: Benign paroxysmal (BPPV) positional vertigo is a common condition seen by otolaryngologists. The canalith repositioning maneuver as defined by Epley can be an effective treatment for BPPV.

A retrospective review of 21 patients with 23 ears with BPPV treated by CRM between February 2001 and May 2002 at Afyon Kocatepe University Otolaryngology Clinic was done. Each patient was diagnosed as BPPV by history and Dix-hallpike maneuver. Patients received Modified Epley Maneuvers, were instructed to remain upright for 48 hours and avoid sudden head movements. Patients were followed up with repeat Dix-Hallpike maneuvers at 1 week. If symptoms persisted the maneuver was repeated for up to a maximum of four times, at which point patients were considered to have failed treatment.

The average age of patients in this study is 56.8 years. 33.3% of the patients were male. In 11 (52%) patients the left ear, in 8 (38%) the right ear, in 2 (9.5%) both ears were effected. Symptoms resolved after the first session in 2 (9.5%) patients after the 2nd in 6 (28.5%) patients, after the 3rd in 7 (33.3%) patients and after the 4th in 5 (23%) patients. One (4%) patient did not benefit from the maneuver. Only in one patient there was a co-existing pathology. The average follow up period is 5.2 months and no recurrence was seen in the follow-up period of the patients.

The Modified Epley Maneuver is a safe and cost effective treatment modality for BPPV and it can be easily performed as an office based procedure.

[Key words: Vertigo, positional, cochlea, otoliths]

INTRODUCTION

Benign positional vertigo (BPV) is a common cause of recurrent vertigo. It is characterized by brief episodes of vertigo induced by changes in head position. It is first described by Barany in 1921. In 1952 Hallpike and Dix described the classic characteristics of BPPV: affected ear dependency, rotatory nystagmus, latency, and fatigability on repeated provocative positioning (1). Its diagnosis, as described by Dix and Harrison and Dix and Hallpike (2), relies on a history of episodic, positional vertigo of only a few seconds duration, along with the physical findings of delayed onset, fatigability and rotary nystagmus with the Dix-Hallpike maneuver. Whereas the cause of BPPV was initially believed to be the result of cerebellar, cervical, or vascular pathologic conditions, two theories have emerged that explain the pathophysiologic characteristics of this condition: cupulolithiasis and canalithiasis. The former theory represents Schuknecht's original theory that debris adhering to the cupula causes BPPV (3), whereas the latter theory attributes this condition to the presence of free-floating debris in the posterior semicircular canal (4). Although basophilic deposits on the cupula of the posterior canal have been observed at autopsy in patients with BPPV (3), in support of Schuknecht's theory, more recent findings at surgery for posterior canal occlusion for intractable BPPV have demonstrated free-floating particles in support of the canalithiasis theory (4).

As the understanding of the etiology of BPPV evolved to the theories that the positional symptoms are caused by debris attached to or adjacent to the cupula (cupulolithiasis, canalithiasis), canalith repositioning maneuvers were introduced by Semont in 1988 and subsequently Modified by Epley (4,5). The effectiveness of these canal repositioning procedures (CRP) is strong confirmatory support for the general theory that debris in the semicircular canal, most commonly the posterior canal, contributes to the etiology of BPPV.

Before the currently held theories of canalithiasis were proposed as the etiology of benign paroxysmal positional vertigo (BPPV),

Brandt and Daroff (6) developed ves-tibular rehabilitation exercises. This treatment was designed to enhance central compensation rather than, change the abnormal peripheral input. The Semont "liberatory maneuver," as described by Semont et al. (2), involves a series of rapidly changing positions intended to displace the debris from the ampulla of the posterior canal. In 1992, Epley described a less violent series of head positioning (canalith repositioning) intended to elicit gravity-induced movement of the debris from the posterior canal to the vestibule by rotation along the central axis of the canal. The success rate for alleviating vertigo is reported to approach 100% for these maneuvers (4).

However, as the causes and natural progression of BPPV are poorly understood, these reports have produced some controversy. Factors that apparently predispose a person to canalithiasis: are advanced age, trauma, inactivity, and concomitant ear pathologic conditions (2). Interestingly, spontaneous resolution of symptoms has been reported in 89% of people by 1 month, with a subsequent recurrence rate of 33% within 3 years. These facts must be taken into account when success rates for any treatment are reported (2).

MATERIALS AND METHOD

A retrospective review of 21 patients with 23 ears with BPPV treated by CRM between February 2001 and May 2002 at Afyon Kocatepe University Otolaryngology Clinic was done. Each patient was diagnosed with BPPV by history and Dix-Hallpike maneuver. The diagnosis of posterior semicircular canal BPPV was confirmed by observation of upbeating torsional nystagmus when the head was moved in the plane of the posterior semicircular canal. Once the diagnosis was made, a modified canalith repositioning maneuver was performed as described by Epley. In the Modified Epley Maneuver, the patient's head is turned 45° toward the affected side and moved from the sitting position to the Hallpike-Dix position. After 2 minutes, the patient's head is turned slowly to the midline over 1 min. The head is next turned to the contralateral shoulder and is kept prone (180° from the original position) during a 2nd min,

Table 1: Number of patients treated with Modified Epley Maneuver

	After 1.maneuver	After 2.maneuver	After 3.maneuver	After 4.maneuver	No benefit	Total
Number of patients treated	2 (%9.5)	6 (%28.5)	7 (%33.3)	5 (%23.8)	1 (%4.7)	21

after which it is kept for 2nd min in this position. The patient is returned to the seated position slowly with the head still turned. Unlike Epley's technique, however, we used neither mastoid oscillation (vibration) nor pharmacologic agents. Patients with bilateral disease were treated in one ear until resolution of nystagmus and symptoms and then treated in the contralateral ear. For all patients who returned for follow-up appointments, subjective absence of positional vertigo and objective absence of nystagmus with Hallpike-Dix maneuver were considered treatment successes. Patients were considered treatment session failures if they were still symptomatic or demonstrated persistent nystagmus on repeat Hallpike-Dix testing at 1 week. The protocol was repeated for failures at 1 week up to a maximum of 4 attempts. Nystagmus or subjective vertigo after 4 attempts constituted a complete treatment failure. Patients received Modified Epley Maneuvers, were instructed to remain upright for 48 hours and avoid sudden head movements.

RESULTS

The average age of patients in this study is 56,8 years old. 33.3% of the patients are male. In 11 (52%) patients the left ear, in 8 (38%) the right ear, in 2 (9.5%) both ears are effected. Symptoms resolved after the first session in 2 (9.5%) patients after the 2nd in 6 (28.5%) patients, after the 3rd in 7 (33.3%) patients and after the 4th in 5 (23.8%) patients. 1 (4.7%) patient did not benefit from the maneuver (Table-1). The overall success rate of our patients is 95%. Only in one patient there was a co-existing pathology. The average follow up period is 5.2 months and no recurrence was seen in the follow-up period of the patients.

DISCUSSION

The first therapeutic intervention for BPPV was the vestibular habituation exercise described by Brandt and Daroff (6). Semont described his liberatory maneuver in 1988 and Epley described the canalith repositioning procedure in 1992 (4,5)

The Modified Epley Maneuver starts in the Hallpike-Dix position and then slowly "walks" the debris around the long arm of the posterior canal back into the utricle. In the Semont maneuver, the patient starts in the sitting position with the Head turned 45° away from the affected ear. The patient is rapidly moved to lying on his side (head position is essentially the same as Hallpike-Dix position). After 4 minutes the patient is rapidly moved back to the sitting position and immediately moved to the lying position, face down, on the opposite side. The patient should experience vertigo in this position within 1 minute. After 4 minutes, the patient is slowly moved back into the sitting position. In either maneuver, the net result is to move debris out of the posterior canal into the utricle.

Markedly, inconsistent success rates have been published for the different maneuvers for the treatment of BPPV. Evaluation of treatment results is complicated by a known high spontaneous recovery rate, usually within weeks to months (1). Lynn has described that 88.9% of patients were responders to CRP (7). Smouha (8) reported that 93% of his patients improved but only 63% were clearly related to CRP sessions. Steenerson and Cronin (9) reported that 70% of their patients were asymptomatic 3 months after their Epley Maneuver. Li (10) reported 97% symptom control (41% cure) with mastoid oscillation and CRP, but reported that no patients were cured with CRP without oscillation. Semont reported 92.7% "positive results" after two

maneuvers (5). All these findings contrast with Blakley, who found no difference between canalith repositioning maneuver and no treatment in 38 subjects (11).

Our overall success rates are similar to the results of former studies (1,2,12). In the former studies including Epley's (4), it is generally found that symptoms disappear after first maneuver in about 70% of the cases and after second maneuver in about 90% of the cases overall (1,2,4,12) but in our study only 9.5% of the cases after first maneuver and 36% of the cases after second maneuver overall were symptom free. The reason of this occurrence is probably due to the Modified Epley Maneuver we used. The intervals in between head positions in the maneuver we practiced are shorter (2 minutes instead of 3 or 4) but the positions were nearly the same. A second reason of our different result may be due to the relatively less number of patients in our study.

Another interesting point that we encounter is that we didn't see any recurrences in a follow up period of approximately 5 months. In the study of Dornhoffer (2) et al. they found a recurrence rate of 32% within a period of 3 months. The reason why we didn't encounter any recurrence may again be due to the relative smallness of our study group.

In 1 patient (4%) we found an accompanying vertiginous syndrome (Meniere syndrome) similar to studies done before (1,2,12).

As conclusion, the Modified Epley Maneuver is a safe and cost effective treatment modality for BPPV and it can be easily performed as an office based procedure.

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Corresponding author:

Mustafa Deniz Yılmaz, MD
Dumlupınar Mah. Osman Atilla Cad.
No: 11/3 Afyon Turkey
Phone (GSM): 0.532.334 52 56
Fax: 90.272.217 20 29
E-mail: denizy@aku.edu.tr