

정상인에서 측정한 클릭음 자극에 의한 전정유발 근전위

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Click Evoked Vestibular Myogenic Potentials in Normal Subjects

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-ABSTRACT-

Background and Objectives : Although there has not yet been clearly established, vestibular evoked myogenic potentials (VEMPs) has been thought to originate from sacculus. The purpose of this study is to investigate the VEMPs in normal subject for estimate the usefulness as a clinical test of saccular function. **Materials and Methods** : Seventeen normal adults were tested. In supine and head flexion position, click sound (132 dB SPL, 0.1 msec, 5 Hz repetition rate, 300 times) was applied monaurally. VEMPs were recorded at the upper two third of both sternocleidomastoid muscle with surface electrode. **Results** : Typical response potentials have two and half biphasic waves that were named P1, N1, P2, N2 and P3 based on the polarity of their components. The first biphasic waves (P1N1) were evoked in all subjects (100%) by ipsilateral click stimulation of each ear, whereas contralateral waves were evoked in 29.4%. P2N2 waves were evoked in 47.1% ipsilaterally, and in 11.8% contralaterally. Latencies of ipsilateral P1 and N1 were 13.17 ± 2.19 msec, 21.06 ± 2.31 msec respectively, and amplitude of P1-N1 were 1.41 ± 0.6 uV ipsilaterally and 1.02 ± 0.03 uV contralaterally. There were no significant differences in latencies and amplitudes of P1, N1 between ipsilateral and contralateral side. **Conclusions** : Ipsilateral first biphasic wave, P1N1 is most consistent response in VEMPs that observed in all normal subjects. So, it can be used for evaluation of saccular function. (J Clinical Otolaryngol 2002;13:73-77)

KEY WORDS : Evoked potentials · Saccule and utricle.

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(Fig. 1). P1N1
 17 (100%)
 5 (29.4%) P2N2
 8 (47.1%), 2 (11.8%)가
 P3 5 (29.4%), 1 (5.9%)
 (Table 1).
 P1 13.17 ± 2.19 msec, N1
 21.06 ± 2.31 msec, P2 24.66 ± 2.34 msec, N2
 30.28 ± 1.82 msec, P3 38.2 ± 2.91 msec

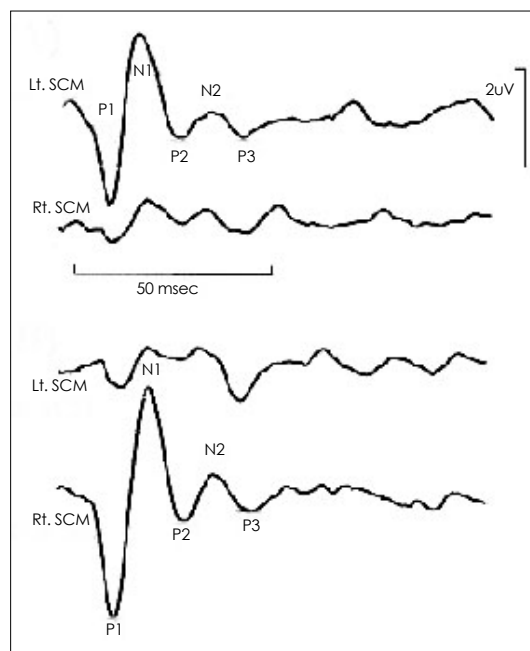


Fig. 1. Typical response potentials with click sound stimulation of left ear (A) and right ear (B) have two and half biphasic waves that were named P1, N1, P2, N2 and P3 based on the polarity of their components.

Table 1. Response consistency and laterality of the VEMPs

	Ipsilateral	Contralateral
P1N1	17/17 (100%)	5/17 (29.4%)
P2N2	8/17 (47.1%)	2/17 (11.8%)
P3	5/17 (29.4%)	1/17 (5.9%)

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Table 2. Response latencies of each wave (msec) No statistical differences were found between both sides in P1 and N1 wave (Wilcoxon rank sum test, $p > 0.05$)

	P1	N1	P2	N2	P3
Ipsilateral	13.17 ± 2.19	21.06 ± 2.31	24.66 ± 2.34	30.28 ± 1.82	38.2 ± 2.91
Contralateral	13.5 ± 1.41	20.0 ± 1.06	27.55	32.25	41.2

Table 3. Response amplitudes of each wave (uV) No statistical differences were found between both sides in P1, N1 and P1-N1 wave (Wilcoxon rank sum test, $p > 0.05$)

	P1	N1	P1-N1	P2	N2	P3
Ipsilateral	0.65 ± 0.29	0.76 ± 0.37	1.14 ± 0.6	0.2 ± 0.13	0.57 ± 0.25	0.65 ± 0.17
Contralateral	0.37 ± 0.29	0.65 ± 0.33	1.02 ± 0.03	0.34	0.5	0.66

P1 N1 14)

(Table 2).

P1 0.65 ± 0.29 uV, N1 0.76 ± 0.37 uV, P2 0.2 ± 0.13 uV, N2 0.57 ± 0.25 uV, P3 0.65 ± 0.17 uV

(Table 3).

고 찰 가 .¹⁰⁾ 가

가 가 , 가⁷⁾ ,¹⁰⁾¹¹⁾ 가¹⁵⁾ 가¹²⁾ , (startle response) 가 100 msec . Ferber - Viart¹⁶⁾ 가 50 msec 6msec ,⁷⁾¹²⁾ Natout¹⁷⁾ 가¹³⁾ 가 16% 33% 가 4-6) 가 가 가 Colebatch⁵⁾

P2 Bickford ⁷⁾ 12 msec, 26 msec, Cody ¹²⁾ 14 msec, 24 msec ¹⁸⁾ 11.2 msec, 21.7 msec
 P3 54 msec⁷⁾ 40 msec¹²⁾
 38.2 msec
 kford ⁷⁾ P1N1 Bic- P1N1

가
 P1N1

결론

P1N1

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중심 단어 :

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⁵⁾⁷⁾
 Colebatch ⁵⁾
⁹⁾ 가 ¹⁶⁾
 Colebatch ¹¹⁾ 3 P2N2
 Murofushi ¹³⁾ 71%
 , 9%
 가
 Robertson ⁹⁾ 55%
 P2N2 P3 47.1% 29.4%
 P1N1

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