

Vestibular Evoked Myogenic Potentials in Infratentorial Infarction Patients

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Vestibular evoked myogenic potentials (VEMP) have been known to be useful in documenting abnormality in patients with various vestibular disorders but the studies of VEMP in stroke patients are rare. We recorded VEMP in 17 consecutive patients with acute ischemic stroke in the brainstem lesions. All patients underwent magnetic resonance imaging and we compare VEMP results with the lesion documented by brain imaging. VEMP were defined to be abnormal when they were very asymmetrical (one is 2 times of more as large as the other), or absent in one side. VEMP abnormalities were found in 71% (12/17) of acute infarction patients with brainstem lesions. Most abnormalities found in the ipsilateral side of the lesion (9/12) but abnormalities in contralateral side of lesion were found in 25% (3/12) of patients. VEMP would be considered a useful complementary neurophysiological tool for the evaluation of brainstem dysfunction in acute stroke patients

Key Words: VEMP, Infratentorial, Cerebral infarction

(biphasic)
(positive) 23
(p13n23)⁶

13 ms
ms

VEMP

VEMP

가

Meniere

가

가

VEMP

VEMP

(medial
vestibulospinal tract)

(lateral vestibulospinal tract)

1-3

4-5

7-9

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1.
2005 1 9

2

(Philips 1.5T)

2. VEMP
 (sternocleidomastoid) (supine)
 가
 95DB nHL (tone burst)
 0.2
 500 Hz
 (band filter, 30~3000 Hz) 300 (averaging) 80 ms
 Viking IV D (Nicolet)
 3. VEMP
 VEMP 2 가 p13-n23
 Fig. 1
 , Fig. 2, 3, 4
 VEMP
 VEMP
 VEMP

17 가
 68 (49~90) , 가 10 가 7
 VEMP
 5.3 (1 ~12)
 (midbrain)가 2 ,
 (pons)가 9 , (medulla)가 3 , 가 3
 VEMP 12
 2 1 , 9 7 , 3
 2 , 3 2 17
 12 (71%)
 (ipsilateral) 가
 1 , 5 , 1 ,
 2 12 9
 (75%), (contralateral)
 2 , 1 3
 (25%). 가
 가 1 ,
 6 , 2 , 1
 가 1 ,
 1 .(Table 1).

Table 1. Number of patients with VEMP abnormalities according to the lesion

	midbrain	pons	cerebellum	medulla
total patients	2	9	3	3
VEMP abnormalities	1	7	2	2
ipsilateral	1	5	2	1
contralateral	0	2	0	1
absent	1	6	2	1
asymmetry	0	1	0	1

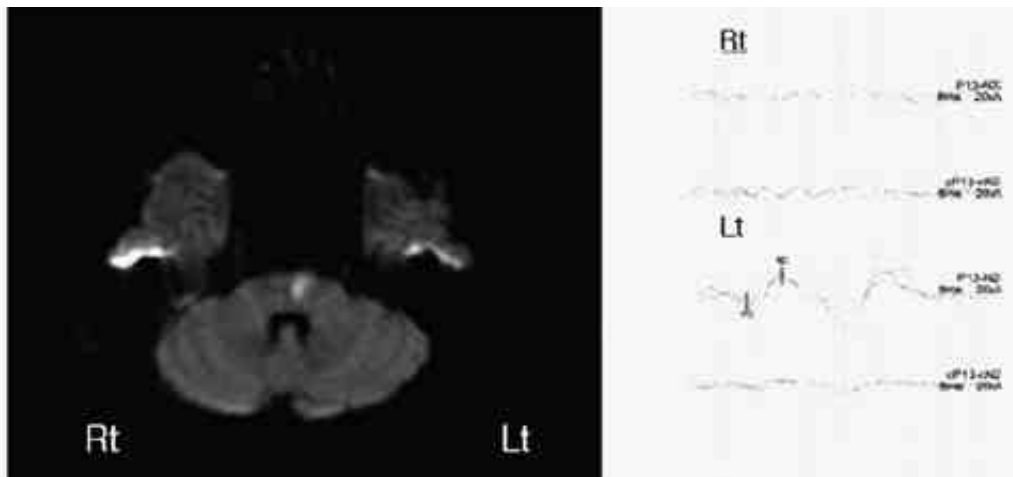


Figure 1. Example of VEMP abnormality in infratentorial stroke patients. The Diffusion weighted image shows acute ischemic infarction in left pons (left) and no potentials was observed in right side of VEMP recording (right).

, VEMP . Itoh
(
VEMP

5 , 3 , 5)
9 . 7
(2 , 5)
14 11
. 12 17 12

VEMP

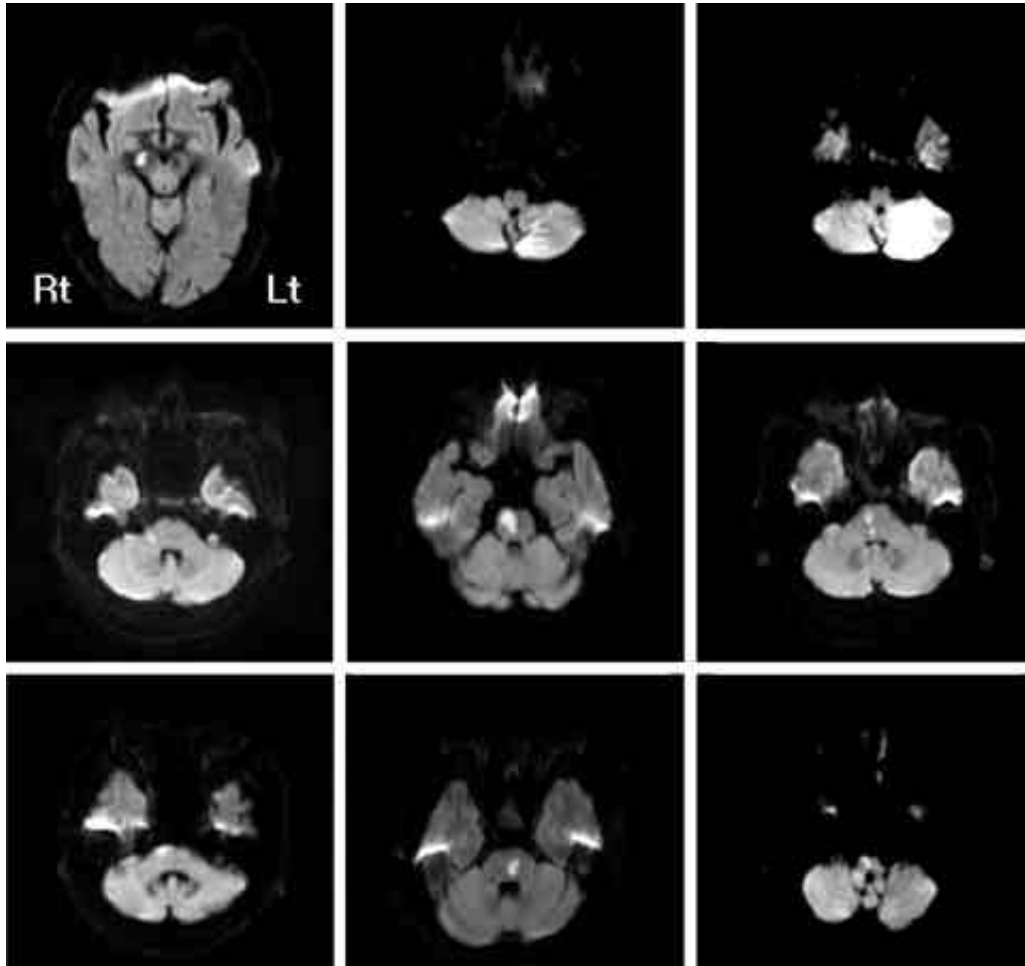


Figure 2. Diffusion weighted MR images of patients who showed ipsilateral VEMP abnormalities according to the lesion(1 mid-brain, 2 cerebellum, 5 pons, 1 medulla lesion).

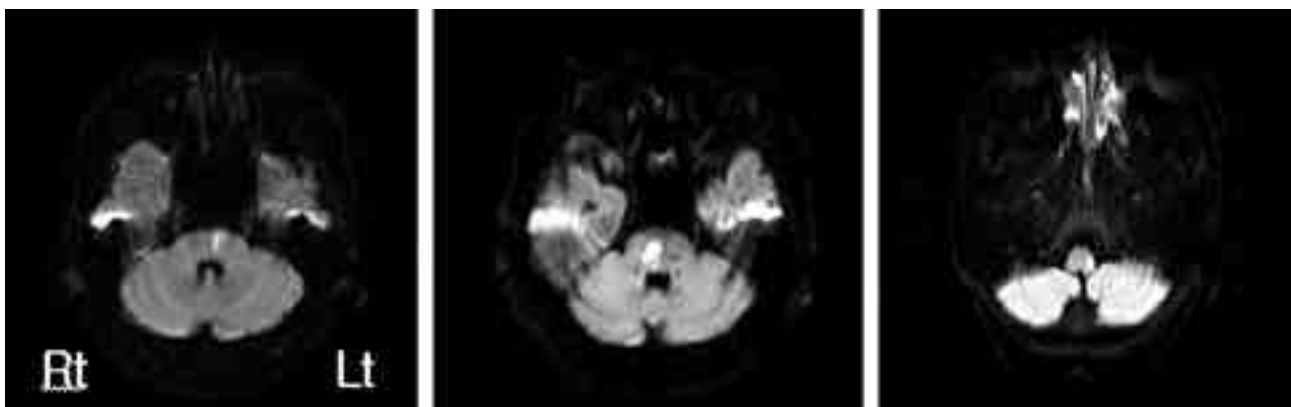


Figure 3. Diffusion weighted MR images of patients who showed contralateral VEMP abnormalities according to the lesion(2 pons, 1 medulla lesion).

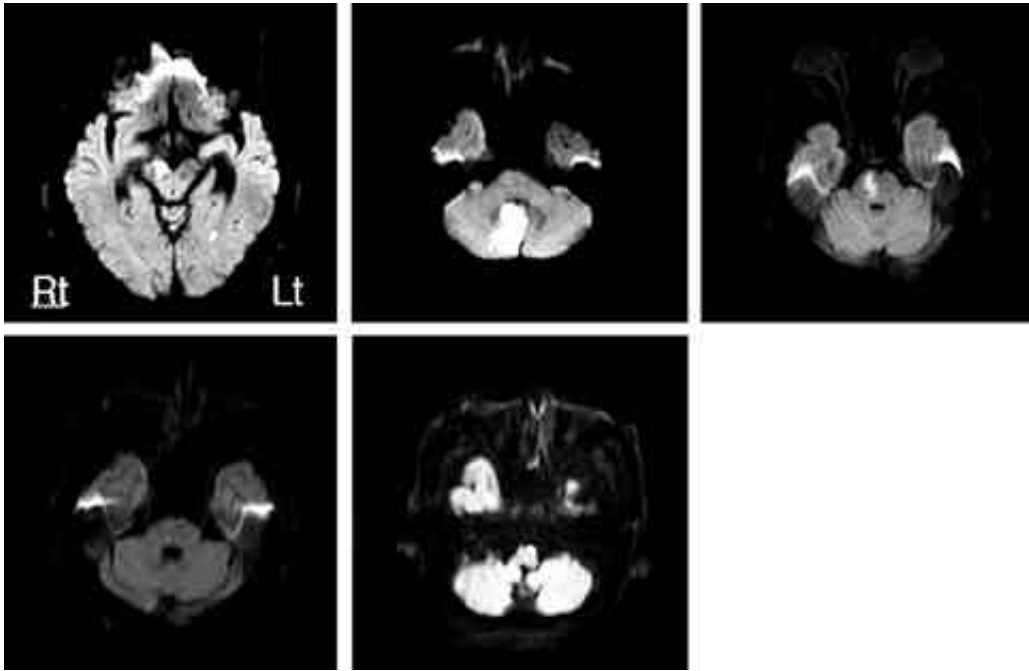


Figure 4. Diffusion weighted MR images of patients who showed no VEMP abnormalities(1 midbrain, 1 cerebellum, 2 pons, 1 medulla lesion).

VEMP 가 가 가 가 가
 VEMP 가 가 가 가 가
 (auditory evoked potential) 가 가 가 가
 (
 13 VEMP 가 가
 Itoh VEMP 가 가
 가 4,15 가 가 가
 가 VEMP 가 가 가
 가 VEMP 가 가 가
 14 VEMP 가 가 가 가
 VEMP 가 가 가 가 가
 (supranuclear control) 가 가 가 가
 15 가 가 가 가
 VEMP 2 1 가 가 가
 가 가 가 가 가 가

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