

## 미세혈관 감압술중 뇌간청각유발전위 감시장치의 유용성

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= Abstract =

### Significance of Intraoperative BAEPs Monitoring during Microvascular Decompression Surgery

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**O**bjective : Surgery for the microvascular decompression is mostly concerned with injury to the cranial nerves or brain stem by cerebellar retraction. Intraoperative brain stem auditory evoked potentials(BAEPs) has been continuously monitored on surgery to evaluate the extent of injury, recovery of the nerves and prognosis.

**Methods** : Of the 161 cases of CP angle surgery from Feb. 1996 to Apr. 1998, 103 cases were monitored during operation. Thirty five patients who had undergone similar surgery were selected and evaluated ; 23 patients were monitored and 12 were not during surgery. If monitor showed more than 0.5 mSec delay of latency, surgeon was given a warning not to retract brain any more. If more than 1mSec delay, surgeon was informed to stop surgery and wait for the returning of evoked potentials. The level of amplitudes and delay of latencies during the initial stage of operation, opening the dura, insertion of teflon patches, and closing the dura and recovery were then compared.

**Results** : Twenty patients were male and 15 were female. Their average age was 50.26 years. Mean amplitude during the initial stage of operation was  $0.60 \pm 0.25$  mV, at opening the dura  $0.56 \pm 0.26$ , after teflon patches insertion  $0.49 \pm 0.20$ , and after closure of dura  $0.47 \pm 0.28$  mV. Mean latency during the early stage of operation was  $6.08 \pm 0.67$  mSec, at opening of dura  $6.38 \pm 0.55$ , insertion of teflon  $6.97 \pm 0.59$ , and closing the dura  $6.17 \pm 0.54$ . There was statistical significance in the difference of amplitudes between each procedures, and in the difference of latencies. For the complete recovery of amplitude and latency, it usually took average 5.65 minutes(0-20 min). In monitored group, only one patient required more than 20 minutes to recover and suffered from hearing disturbance after surgery. Others were recovered within 10 minutes without complications. However, 4 out of 12 patients who were not monitored showed hearing disturbance, and 1 patient had temporary facial palsy and dizziness( $p=0.000$ ).

**Conclusion** : The results indicate that continuous intraoperative monitoring of BAEPs during CP angle surgery is seen mandatory procedure to prevent operative complications.

**KEY WORDS** : Microvascular decompression · Intraoperative BAEP · Amplitude · Latency.

서 론

2).

가

(somatosensory evoked potential : SSEP),

(brainstem auditory evoked potential :

BAEP),

(visual evoked potential : VEP)가

4).  
 1)5)13),  
 (far - field reflection) 7).  
 Sohmer Feinmesser<sup>16)</sup> 1967

8)9)12)19).  
 가

연구대상 및 방법

1996 2 1998 4  
 103 161  
 23 35  
 23 19 , 3 ,  
 1 가 14 , 9  
 50.26  
 (4 Channel Nicolet CA - 1000 clinical averager)

(reference electrode)

11.1 , 100mSec

75dB

55dB

7 3 5 (wave III & V)

Table 1. Intra-operative BAEPs monitoring

	Amplitude(mV)	Latency(mSec)
Initial	0.60 ± 0.25	6.08 ± 0.67
Dura open	0.56 ± 0.26	6.38 ± 0.55
Teflon insertion	0.49 ± 0.20	6.97 ± 0.59
Closure	0.47 ± 0.28	6.17 ± 0.54

5 (amplitude) (latency)

0.5mSec

5 가 가

가 가

, 1mSec

가

연구 결과

5 0.60 ± 0.25mV  
 0.56 ± 0.26mV 가,  
 0.49 ± 0.20mV , 0.47 ± 0.28mV  
 가 20  
 6.08 ± 0.67mSec  
 6.38 ± 0.55mSec ,  
 6.97 ± 0.59mSec 0.6mSec  
 가, 6.17 ± 0.54mSec

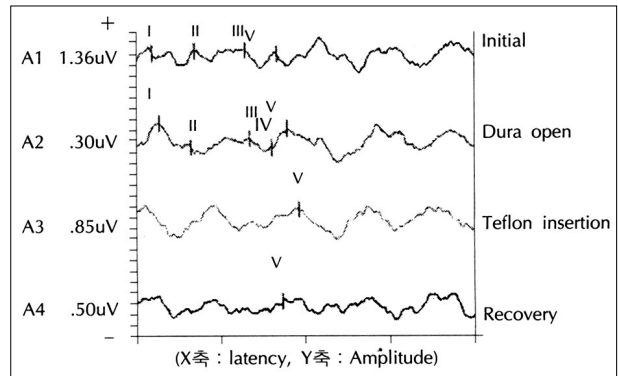


Fig. 1. Intraoperative BAEP with 3 minutes for the recovery.

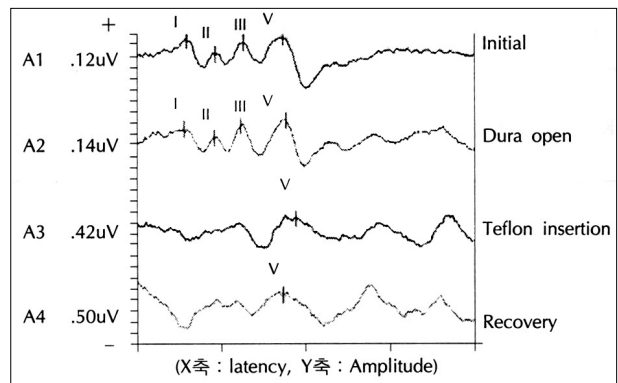


Fig. 2. Intraoperative BAEP requiring more than 20 minutes for the recovery.

(Table 1).

14),  
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 (0 20 ) , 10 가 , 1 20 가 가 13).  
 Fig. 1 30 , 가 가  
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 (subcortical potential)가  
 (neural generator) (sc -  
 alp electrodes) (volume conduction) 가  
 , (epoch) 13).  
 7).  
 1 4% 6), 20%  
 8).  
 Raudzens Shetter<sup>13)</sup> 46  
 가 가 . 3 5

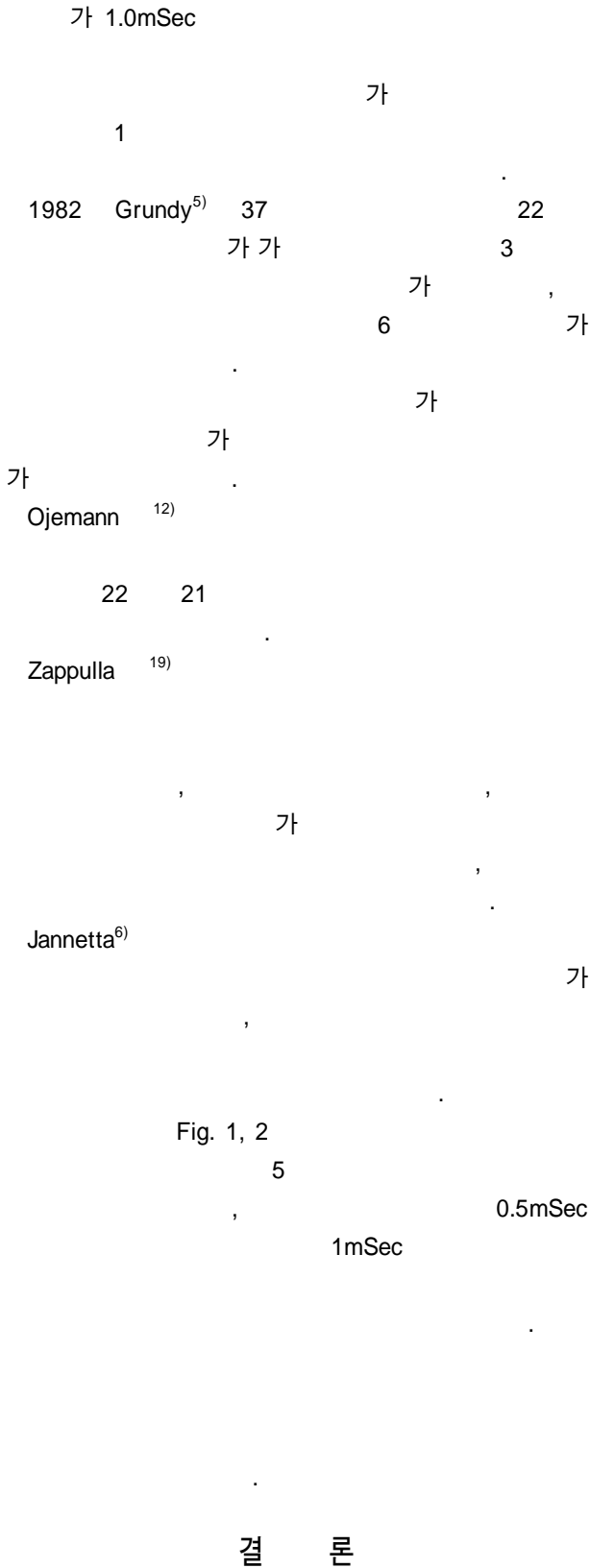


Fig. 1, 2

결 론

23  
5  
가 , , ,  
1  
가 , , , 23 1  
1982 Grundy<sup>5)</sup> 37 22 가 , 20  
가 가 3 가 , 22  
가 , 10 가  
6 가 . 12 4  
가  
가  
Ojemann<sup>12)</sup>  
22 21  
Zappulla<sup>19)</sup>  
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