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– Abstract –

Side-to-Side Amplitude Ratio in SEP : Comparisons of Three Measurement Methods in Normal Adults

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Objective : To evaluate clinical utility of amplitude of lower extremity SEP in lumbosacral radiculopathy, we tried to know side to side amplitude ratios in normal adults.

Methods : In 20 healthy men, we calculated amplitude ratios of lower extremity SEP according to 3 different amplitude decision methods on both sides and compared both sides with 3 different methods. All subjects was studied with posterior tibial nerve, sural nerve and S1 dermatomal SEPs.

Results : In posterior tibial nerve, amplitude ratio was 41.8~93.4% and 43.5~98.6% in sural nerve and 21.2~93.2% in S1 dermatome.

Conclusion : When comparing amplitudes on both sides in lower extremity SEP studies, P1/N1 amplitude is recommended and comparing of mean of 2 different tests is recommended. Also, amplitude ratio with less than 40% is considered abnormal in posterior tibial nerve or sural nerve SEP studies.

Key Words : Lower extremity somatosensory potential study, Side to side comparison, Amplitude ratio, Amplitude decision method

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가 0.80 0.91
(Table 1).

1
0.50 0.86
(Table 2).

3.

9.9% 99.1%

P1/N1(B) , P1/N1

(C)

(MAX/MAX)

(MEAN/MEAN)

40%

(Table 3).

19.1%

99.8%

, P0/P1(A)

P1/N1(B)

(C)

,

(MAX/MAX)

(MEAN/MEAN)

40%

(Table 4).

, 3가

P0/P1(A)

(MIN/MAX)

(MAX/MAX)가

(MAX/MAX)

(MEAN / MEAN)

(Table 5).

가

가

(MIN/MAX)

(MAX/MAX)가

(MAX/

MAX)

(MEAN/MEAN)

가

(Table 6).

Table 1. Intertrial Variations

	Tibial	Sural	S1
A	0.80	0.80	0.83
B	0.88	0.83	0.85
C	0.88	0.91	0.89

Pearson's Correlation Coefficient

Table 2. Side to Side Variations

	Tibial	Sural	S1
A	0.70	0.66	0.79
B	0.50	0.80	0.44
C	0.58	0.86	0.26

Pearson's Correlation Coefficient

Table 3. Amplitude Ratio in Tibial Nerve(%)

	MIN/MAX	MAX/MAX	MEAN/MEAN
A	26.8-85.0	33.3-98.3	36.5-98.5
	P(2.5) 30.3	P(2.5) 36.2	P(2.5) 37.9
B	9.9-78.9	40.6-99.1	41.8-93.4
	P(2.5) 20.0	P(2.5) 44.1	P(2.5) 42.9
C	30.9-83.9	47.0-98.7	51.0-96.0
	P(2.5) 37.2	P(2.5) 50.0	P(2.5) 53.3

P(2.5)=2.5 Percentile

Table 4. Amplitude Ratio in Sural Nerve(%)

	MIN/MAX	MAX/MAX	MEAN/MEAN
A	19.1-85.0	29.2-99.5	25.0-99.8
	P(2.5) 22.1	P(2.5) 38.5	P(2.5) 36.2
B	24.3-89.4	43.1-98.5	43.5-98.6
	P(2.5) 27.2	P(2.5) 46.7	P(2.5) 44.1
C	28.1-91.9	37.2-99.6	37.6-99.8
	P(2.5) 28.7	P(2.5) 45.3	P(2.5) 45.2

P(2.5)=2.5 Percentile

Table 5. Amplitude Ratio Comparisons in Tibial Nerve

	MIN/MAX	MAX/MAX	MEAN/MEAN
A	<0.05		0.49
B	<0.05		<0.05
C	<0.05		0.05

Paired T-test, P value

Table 6. Amplitude Ratio Comparisons in Sural Nerve

	MIN/MAX	MAX/MAX	MEAN/MEAN
A	<0.05		0.15
B	<0.05		0.30
C	<0.05		0.10

Paired T-test, P value

Table 7. Amplitude Ratio Comparisons in Tibial Nerve

	MAX/MAX	MEAN/MEAN
A		
B	0.40	0.21
C	0.13	0.11

Paired T-test, P value

Table 8. Amplitude Ratio Comparisons in Sural Nerve

	MAX/MAX	MEAN/MEAN
A		
B	0.27	0.18
C	0.12	0.18

Paired T-test, P value

Table 9. Amplitude Ratio in S1 Dermatome(%)

	MIN/MAX	MAX/MAX	MEAN/MEAN
A	5.3~95.3	25.0~97.5	20.2~100
B	1.8~77.2	18.4~98.9	21.5~93.2
C	11.8~77.2	26.9~98.7	27.0~93.3

(Table 8). 가

1

5%
가 95%

(Table 9). P1/N1 가 2

가

20 가

가

1996 Dumitru Dreyfuss 5

1

1995 Buchner 가 6

5 7

P0 P1

P1 N1 가

가

가 C P0/P1 P1/N1

가

1 가 5%

20

1) P1/N1 가

가

2)

가 0.4

가

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