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Predictive value of H-reflex in S1 radiculopathy using selective nerve root block

Soo In Yun[1*], Eunseok Choi[1†], Sook Jung Lee[1], Saerom Kang[1], Ho Young Jeong[1]

The Catholic University of Korea Daejeon St. Mary`s Hospital , Department of Rehabilitation Medicine[1]

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Introduction
H-reflex is useful to electrophysiologically diagnose S1 radiculopathy. However, there are some cases in which the clinical symptoms and/or the findings of imaging studies suggestive of S1 radiculopathy do not correlated with H-reflex parameters. The predictive value of H-reflex is analyzed in patients with L5 and/or S1 radiculopathies using selective nerve root block (SNRB).

Objective
Patients complained of more than 3 months of low back pain (LBP) and/or radicular pain to ipsilateral lower extremity enrolled. Each subject underwent electrodiagnostic study including H-reflex, MRI study of lumbosacral spine and SNRB.

Method
A retrospective chart review was done on 85 patients who received spine interventions from September of 2015 to April of 2018. Of them, subjects who were post spine surgery syndrome, those who were given SNRB of L5 and S1 levels at the same time, were excluded. Of the remaining 29 patients, no responses of H-reflex were 12 and delayed latency 7, so they were given S1 SNRB. Ten patients with normal H-reflex were injected L5 SNRB (Table 1). Post-injection pain (NRS) was compared with pre-injection one, and according to the Results, the patients were grouped as effective (more than 33% decrease of pain score) or not-effective group (less than 33%) to define the predictive value of H-reflex (Table 2).

Result
Positive predictive value of H-reflex in S1 radiculopathy confirmed by SNRB was 73.7% and negative predictive one was 60.0%.

Conclusion
The clinical utility of H-reflex in diagnosis of S1 radiculopathy is validated by SNRB.

Table 1. Demographic Characteristics of the Participants

	H-reflex	
Demographic variable	**Abnormal[a)] (n=19)**	**Normal (n=10)**
Age	66.4 ± 10	52.8 ± 11
Sex		
Male	7	5
Female	12	10

Total n=29

Data presented as mean ± SD or n

a) Abnormal included patients with delayed latency and no responses of H-reflex

Table 2. Intervention[a)] Outcomes

	Abnormal (n=19)	**Normal (n=10)**
Pain		
Pre	5.6 ± 1.8	6.1 ± 1.0
Post	3.7 ± 1.3	4.7 ± 1.6
P value	0.000	0.000
Effects		
Effective	14	6
No-effective	5	4
Predictive value (%)	73.7[b)]	60.0[c)]

Data presented as mean ± SD or n or %

a) Abnormal group received intervention in S1, normal group received intervention in L5

b) Positive predictive value

c) Negative predictive value