

The validity of the sacral latency test as a diagnostic tool for impotence

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Abstract 30 Patients with pre-established diagnosis for the cause of impotence were tested by the Sacral Latency Test divided into 3 equal groups: group I with psychogenic impotence, group II with massive venous leakage and group III with neurogenic impotence due to various neurological diseases. The sacral latency was normal in all patients of groups I and II and was abnormal in all patients of group III, thus confirming its validity as a diagnostic tool for neurogenic impotence.

Introduction During the last few years, viewpoints have changed considerably as to the predominance of psychogenic factors in the etiology of erectile dysfunctions. To date, it is recognized that in many patients erectile dysfunctions are caused by organic disorders. This important shift of emphasis to organic erectile disorders can be ascribed to the development of objective physiological tests for the assessment of the erectile process (Lavoisier *et al* 1989). The measurement of nocturnal penile tumescence (Fisher *et al* 1979), penile rigidity (Bradely 1987), duplex of the penile arteries, cavernosography, the papaverine test (Viral *et al* 1984) and the Sacral Latency Test (Blaivas *et al* 1981) have shown that the major causes of erectile dysfunctions are: venous, arterial, neurogenic and psychogenic.

The Sacral Latency Test or Sacral Evoked Potentials or Bulbocavernosus Evoked Response are merely an electrophysiological representation of the bulbocavernosus reflex (Krane and Siroky 1980). It is performed by stimulating the penile skin and measuring the latency (time) required to produce the first response obtained in the bulbocavernosus muscle. Thus it attempts to determine the integrity of (a) the peripheral dorsal nerve afferent (pudendal afferent) from the penis to the sacral cord, (b) the sacral spinal cord S_{2,3,4} (c) the pudendal (perineal) deferent pathway from the sacral cord to the bulbocavernosus muscle.

Aim The aim of the work was to test the validity of the Sacral Latency Test (bulbocavernosus reflex latency) as a diagnostic tool of neurogenic impotence.

Material 30 patients with impotence divided into three study groups according to the etiology:

1 Group I: Psychogenic Impotence

10 patients with psychogenic impotence. The diagnosis was based on the preservation of the morning erection, a normal papaverine test and the impotence was only related to specific situations. Age range from 25-37 years, mean age was 31.3 years

2 Group II: Venous Leakage

10 patients with impotence due to massive venous leakage as diagnosed by cavernosography. Age range from 24 to 34 years, mean age was 29.6 years.

3 Group III: Neurogenic Impotence

10 patients with neurological disorders associated with impotence as follows:

3 patients with massive central lumbar disc herniation associated with foot drop, incontinence of urine and stools.

2 patients with post-traumatic L1 fracture.

2 patients with spinal cord tumors (one intramedullary at level of the conus medullaris and one extramedullary extending opposite to D10-D12 vertebrae.

3 patients with radiculomyelitis, the radicular part resulting in lower sacral dysfunction. Age range was 19-62 years, mean age was 38.2 years.

All patients were seen in the Neurology Department of Ain Shams University and the Outpatient Neurology Clinic of the Ain Shams Specialized Hospital in the period between 1990-1993.

Methods All patients were studied for the Sacral Latency Test through the following method:

- 1 Ring electrical electrode stimulators were applied on the penile shaft.
- 2 A concentric needle electrode was inserted in each bulbocavernosus muscle, midway between the base of the scrotum and the anus, 1 cm lateral to the midline.
- 3 The stimulator was gradually increased in intensity till the first contraction of the bulbocavernosus muscle was obtained.
- 4 The latency was calculated from the stimulus artifact to the beginning of the first deflection of the response.
- 5 The average latency of eight consecutive responses was considered to be the sacral latency for each individual being tested.

Results The results of the sacral latency in each patient were compared to the normal values for the Egyptian potent males (Zakaria 1994) which was found to be: mean values of 31.5 msec., mean 3SD = 36.8 msec. The results of group I are seen in table 1 which shows normal values for all patients with psychogenic impotence. The results of group II are seen in table 2 which also shows normal values for all patients with venous leakage. The results of group III are seen in table 3 which shows abnormalities of all the patients with established neurogenic lesions leading to impotence.

Table (1): Patients with psychogenic Impotence

Patient No.	Age	Sacral latency in msec	
		Rt	Lt
1	25	30.2	30.2
2	27	29.8	30.0
3	28	31.5	31.5
4	29	32.0	31.9
5	31	30.8	30.8
6	31	31.1	31.0
7	33	32.4	32.4
8	35	30.6	30.7
9	37	31.0	31.0
10	37	30.3	30.3

N.B. The patients were arranged in this group according to their age.

Table (2): Patients with venous leakage

Patient No.	Age	Sacral latency in msec	
		Rt	Lt
11	24	31.0	31.0
12	25	30.8	30.9
13	28	31.5	31.5
14	28	29.5	29.1
15	29	27.8	27.8
16	31	31.2	31.3
17	32	32.1	32.1
18	32	30.5	30.4
19	33	31.6	31.7
20	34	32.0	31.8

N.B. The patients were arranged in this group according to their age.

Table (3): Patients with neurogenic impotence

Patient No.	Age	Clinical data	Sacral latency (msec)	
			Rt	Lt
21	45	Massive central L ₅ -S ₁ disc	52	no response
22	62	Massive central L ₄ -L ₅ disc	no response	
23	59	Massive central L ₄ -L ₅ disc	49.4	56.6
24	32	Post traumatic L ₁ fracture	no response	
25	38	Post traumatic L ₁ fracture	no response	
26	24	Intramedullary conus tumor	no response	
27	41	D ₁₀ -D ₁₂ extramedullary tumor	no response	48.0
28	19	Radiculomyelitis	64.7	64.0
29	28	Radiculomyelitis	no response	
30	33	Radiculomyelitis	55	64.3

Discussion The results of this study show that the Sacral Latency Test is a reliable indicator of neurogenic impotence provided that the lesion affects the pathway of the reflex i.e., pudendal afferent, S_{2,3,4} or pudendal efferent. This is confirmed by two points:

1. No patient with psychogenic impotence or impotence due to venous leakage showed an abnormal SLT. This is in contrast to the results obtained by Lavoisier et al. (1989) who found 8 patients with psychogenic impotence (diagnosed by normal nocturnal erections) to have abnormal SLT. Porst et al. (1988) found that 42% of important patients (with no history of neurological Authols disease) had an abnormality of the sacral reflex.

2. All patients with established sacral cord or root affection S_{2,3,4} had abnormal SLT.

Thus, we strongly recommend Sacral Latency Testing in all patients with organic erectile dysfunction as a complementary tool in addition to venous and arterial studies, thus covering the various etiologies for organic erectile dysfunction.

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مصادقية زمن الانعكاس العجزي كوسيلة لتشخيص العنة

تم اختيار ثلاثين مريضاً بالعنة باستخدام زمن الانعكاس العجزي مقسمين إلى ثلاث مجموعات تضم المجموعة الأولى عشرة مرضى مصابين بالعنة النفسية، وتضم المجموعة الثانية عشرة مرضى مصابين بالعنة الناجمة عن الارتداد الوريدي، والمجموعة الثالثة تضم عشرة مرضى مصابين بالعنة العصبية نتيجة أمراض مختلفة بالنخاع الشوكي أو الجذور العصبية العجزية. واسفر الاختبار عن نتائج طبيعية بالنسبة للمجموعة الأولى والثانية ونتائج غير طبيعية في كل مرضى المجموعة الثالثة مما يثبت مصادقية زمن الانعكاس العجزي كوسيلة لتشخيص العنة العصبية.