

Electrophysiological Aspect of Traumatic Sciatica After Intramuscular Injection

Halladain Mpung Mansoj*, Ngor Sidy Ndiagne and Laurence Kabore

Department of Neurology, Fann Teaching Hospital, Dakar, Senegal

*Corresponding authors: Halladain Mpung Mansoj, Department of Neurology, Fann Teaching Hospital, Dakar-Senegal, Tel: 00221778135777, E-mail: edolens@gmail.com

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Abstract

Electromyography (EMG) is the recording of electrical activity related to muscle function. EMG can be recorded invasively by inserting needles under the skin near the muscle of material interest and methods Study setting: Our study took place at CHU Fann, in the Department of Clinical Neurophysiology within the Ibrahima Pierre NDIAYE Neuroscience Clinic. It is period this study took place during the period from January 2017 to December 2017, a period of 12 months. RESULTS During the study period (January 2017 – December 2017), 4000 ENMG were performed, only eight involved post-injection sciatica paralysis; in a frequency of 0.2%.

Keywords: Electrophysiological Aspect

Introduction

Electromyography (EMG) is the recording of electrical activity related to muscle function. The EMG can be recorded invasively by inserting needles under the skin near the muscle of interest. Nevertheless, most experiments in psychophysiology use electrodes positioned on the surface of the skin, as they are less invasive but also more able to capture the activity of an entire muscle (like a section of a muscle) [1-4].

Material and Methods

Study framework

Our study took place at CHU Fann, in the Department of Clinical Neurophysiology within the Ibrahima Pierre NDIAYE Neuroscience Clinic. It is a sub-regional university hospital structure, unique in terms of their reception capacity and bringing together many sub-specialties. Research and teaching have a big place there.

Type of study

This is a retrospective, descriptive and analytical study.

Study period

This study took place during the period from January 2017 to December 2017, a period of 12 months.

Study population

Inclusion criteria: All patients received in neurophysiology at the neurology department of the CHNU in Fann and for neurophysiological exploration of post MI sciatica were included in the study.

Non-inclusion criteria: all patients with non-injection paralysis.

Methods

We haven't done any sampling; we carried out a systematic selection of patients meeting the selection criteria. We have made a collection sheet to facilitate data collection. The data were recorded on Excel software.

Variables in study

Our study variables are socio-demographic data and ENMG aspects.

Analysis of the results

We used SPSS version 22 software for statistical analyzes. The confidence interval was calculated at 95% and the significance level retained at 0.05.

Ethical considerations

As the study is retrospective, we did not seek consent from patients, however their identity and data collected is on condition of anonymity.

Results

Population size and frequency of post intramuscular injection paralysis, during the study period (January 2017 – December 2017), 4000 ENMG were performed, only 8 concerned post-injection sciatica paralysis; i.e. a frequency of 0.2%.

Our study allowed us to confirm the importance of electroneurography in the study and diagnosis of sciatic nerve damage after intramuscular injection. According to the results of the neurographies Sensitive nerve conduction and the sensory amplitude of the musculo-cutaneous (right and left) were respectively 37.5% and 50%. The sensory conduction speed was represented by an inexcitability on the right and right musculo-cutaneous left-handedness is a respective frequency of 37.5% and 37.5%. Sensitive conduction on the right and left surale was represented by in 25% by an inexcitability on the amplitude and 25% on the sensitive conduction. The lengthening of the distal latency on the right and left internal popliteal sciatica respectively (37.5% and 62.50%) for the right and left external popliteal sciatica (50% for both), popliteal sciatica internal right and left respectively (37.50% and 25%) and a di ammunition of the right and left conduction speeds respectively (12.5% for both). On the right and left external popliteal sciatica the inexcitability of the speed of motor conduction (12.5%) for both and a decrease in (25% and 37.5%) [6-10].

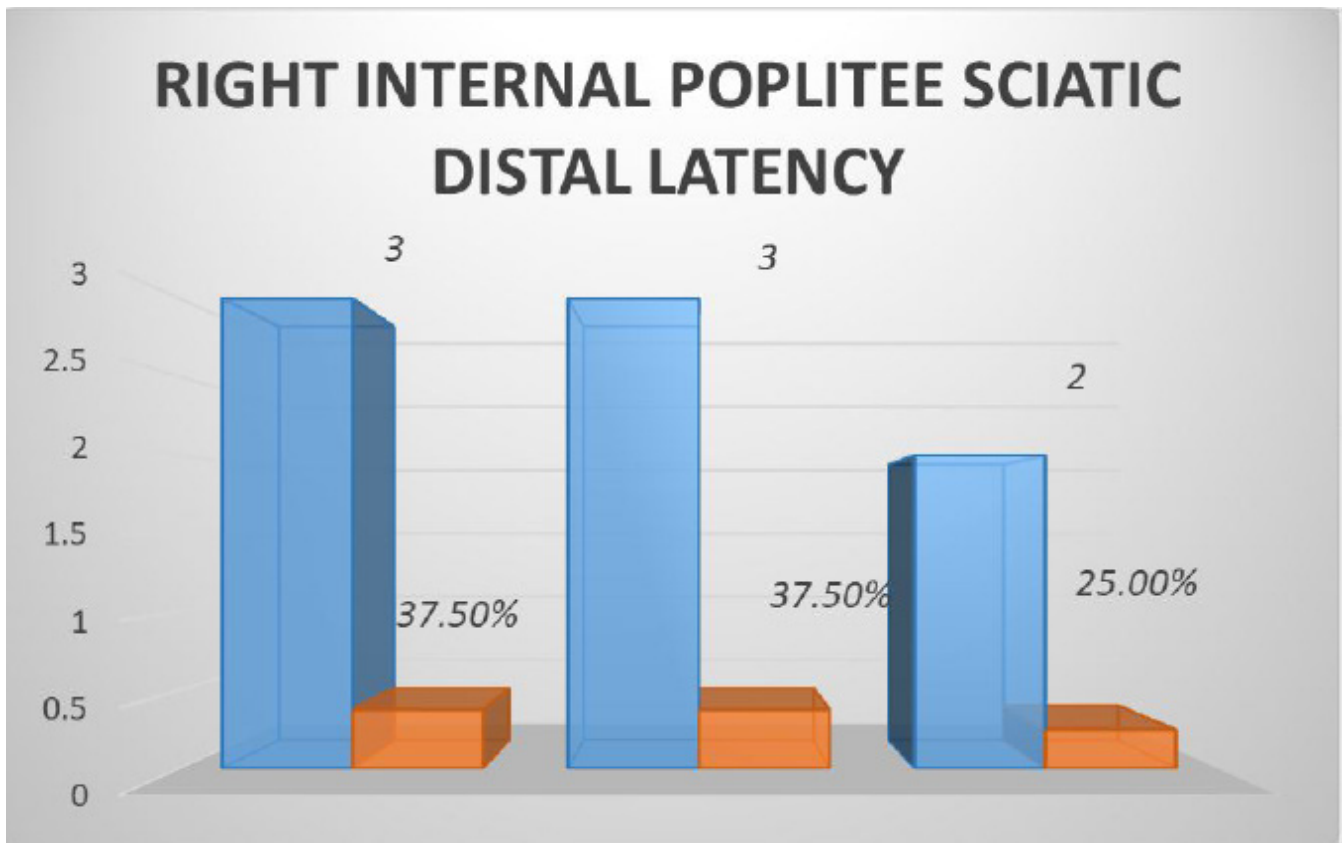


Figure 1: Right internal popliteal sciatica distal latency

From this graph, it can be seen that the distal latency of the right internal popliteal sciatica was 37.5% normal and 37.5% prolonged while it was 25% not carried out.

Discussion

Our study allowed us to confirm the importance of electroneurography in the study and diagnosis of sciatic nerve damage after intramuscular injection. According to the results of the neurographies Sensitive nerve conduction and the sensory amplitude of the musculo-cutaneous (right and left) were respectively 37.5% and 50%. The sensory conduction speed was represented by an inexcitability on the right and right musculo-cutaneous left-handedness is a respective frequency of 37.5% and 37.5%. Sensitive conduction on the right and left surale was represented by in 25% by an inexcitability on the amplitude and 25% on the sensitive conduction. The lengthening of the distal latency on the right and left internal popliteal sciatica respectively (37.5% and 62.50%) for the right and left external popliteal sciatica (50% for both), popliteal sciaticaInternal right and left respectively (37.50% and 25%) and a di ammunition of the right and left conduction speeds respectively (12.5% for both). On the right and left external popliteal sciatica the inexcitability of the speed of motor conduction (12.5% for both) and a decrease in (25% and

37.5%). The alteration of nerve conduction in the form of sensitive or motor inexcitability, it is linked to a complete nerve damage and to the absence of motor unit under voluntary control in the muscles innervated by the injured and as a consequence it is nervous excitability. According to SEDDON in 1983, two types of post-traumatic nerve injury lead to Axonal loss and Wallerian degeneration (2). They act as Axonotmesis and Neurotmesis, which were expressed respectively by reduction and absence of nerve conduction on electroneuromyography. The decrease in motor or sensory conduction speeds would be linked to the secondary destruction of myelin after an Axonal attack. Needle sensing has shown in our muscle series: inner twins, inner tibialis, and right and left quadriceps, lack of activity and fibrillation at rest. On exertion, the trace was neurogenic in almost all cases. The presence of resting activity associated with a lack of motor unit potential can mean total Axonal loss and nerve rupture. Needle Electroneurography is sensitive to detect minor signs of Axonal loss. The predominant anomaly they "is abnormal motor unit recruitment. Since some axons are blocked and the number of unaffected motor units must pull faster than normal to generate force. Fibrillation is explained by acute or rapidly progressive Axonal damage that observes signs of abundant or moderate muscle denervation. These monkeys only appear ten days to three weeks after the onset of nerve damage [11-19].

This graph shows that the sensory conduction velocity of the right sural is normal in 50.00%, 25.00% of inexcitability and respectively 12.50% diminished and unrealized.

internal popliteal sciatica was unrealized 3 in 7.50%, normal in 25.00%, absent in 25.00% and 12.50% lying down.

We notice from this graph that the F wave of the left internal popliteal sciatica was normal in 62.50% and inexcitable in 25.00%.

SENSORY CONDUCTION VELOCITY OF THE RIGHT SURAL

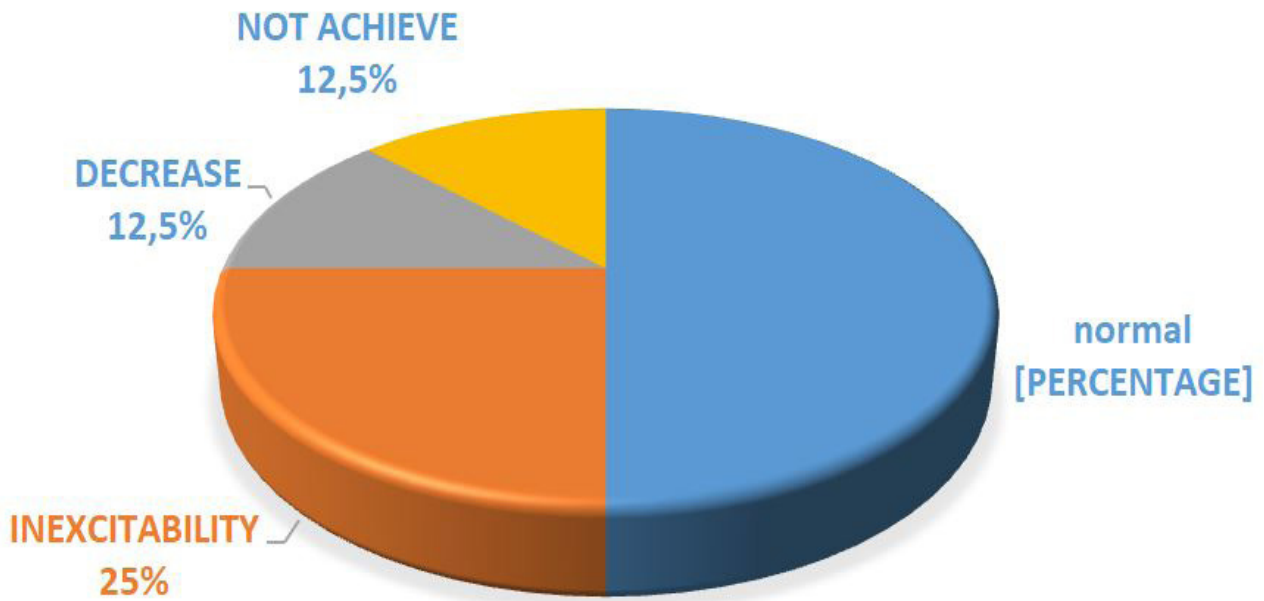


Figure 2: speed of sensitive conduction of the right sural

LEFT INTERNAL POPLITEE SCIATIC F-WAVE

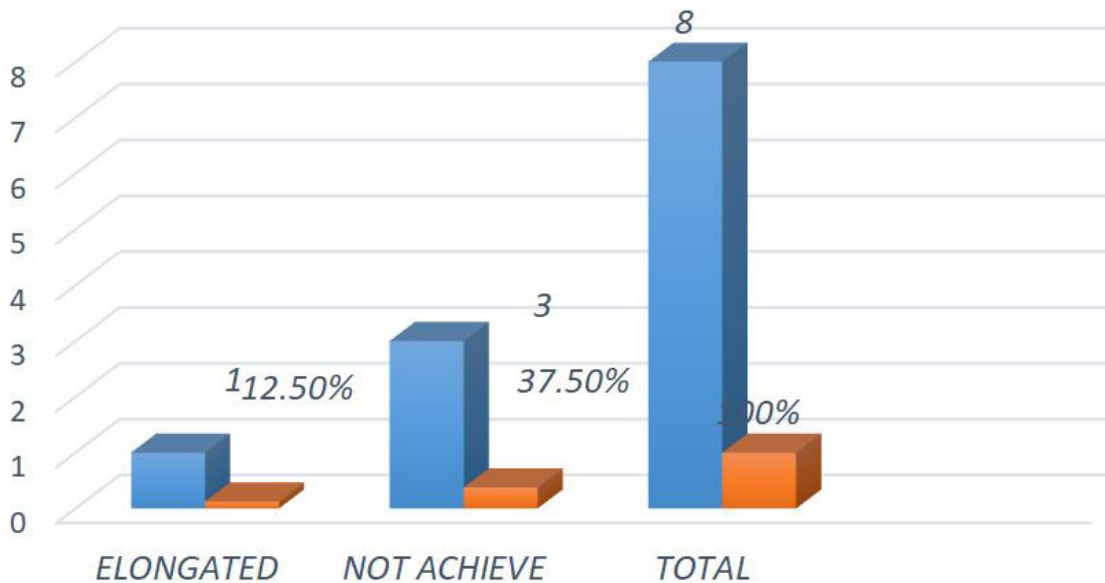


Figure 3: F wave of left internal popliteal sciatica

RIGHT EXTERNAL POPLITEE SCIATIC AMPLITUDE



Figure 4: Amplitude of right external popliteal sciatica

Conclusion

The electro-physiological data of our studies shows the importance of the face electroneuromyograph, i.e. without injections and with injection to detect post-traumatic nerve damage as well as the functional prognosis hence the need for ellargure a large cohort and advocate prospective studies in the future time.

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