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Letter to the Editor

Dorsal Sural Sensory Nerve Action Potential Measurements can only be Recommended for the Diagnosis of Sensory Neuropathy in Diabetics after Studying Carefully Selected Cohorts

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Letter to the Editor

We read with interest the article by Gupta *et al*. on a prospective study comparing the sensitivity of the dorsal sural nerve action potential (dsSNAP) – which measures the latency and amplitude of the SNAP – and the sural nerve action potential (SNAP) – which measures nerve conduction velocity – for the detection of early distal sensory peripheral neuropathy in 101 diabetes patients [1]. The dsSNAP was abnormal in 39.1% of patients, while the SNAP was abnormal in only 9.8% of diabetics [1]. Early neuropathy was also detectable based on subjective loss of temperature and pain sensation, tactile sensation, and vibration sensation [1]. It was concluded that the dsSNAP improves the detection of early sensory neuropathy [1]. The study is noteworthy, but some points require further discussion.

The first point is that sensory nerve conduction parameters (dsSNAP and SNAP) generally depend on age, gender, height, weight, and temperature [2]. Since the control group and the diabetic cohort were not matched for age, gender, and body mass index (BMI), the differences between these two groups could simply be due to the unequal distribution of age, gender, and BMI. Height and weight were not even included in the evaluation [1].

The second point is that the comparison between the first toe and the sternum is subject to limitations. Since the density of nociceptors is higher in the toes than in the sternum [3], the toes are more sensitive to pain than the sternum. Therefore, assessing pain by comparing the response in the first toe and the sternum can be misleading. Similarly, somatosensory and mechanoreceptive receptors (Merkel discs, Ruffini endings, Meissner corpuscles, Pacini corpuscles) are present in higher density on the toes than on the sternum [4], which can lead to false negative or false positive results.

The third point is that the definition of the control group does not guarantee that these subjects did not have sensory neuropathy [1]. The causes of sensory neuropathy are much more widespread than the exclusion criteria included (no previous spinal surgery or lumbago, foot trauma, drug abuse, or contact with heavy metals), so it is possible that at least some of the control subjects had subclinical sensory neuropathy. All primary and secondary types of neuropathy must be excluded in subjects who formed the healthy control group. For example, the inclusion criteria allowed the inclusion of subjects with prediabetes (HbA1c 5.7 to 6.5). Since patients with prediabetes may have sensory neuropathy [5], it is strongly recommended that patients with prediabetes be excluded from the control group.

The fourth point is that different types of neuropathies were not exclusion criteria that prevented diabetic patients from being included in the study group [1]. It is therefore recommended that the exclusion criteria be extended to include immunological neuropathies, paraneoplastic and neoplastic neuropathies, vascular and hereditary neuropathies.

The fifth point is that the study was conducted between July 2022 and April 2024 [1]. Therefore, it is conceivable that at least some of the included patients tested positive for SARS-CoV-2. Were all patients tested for SARS-CoV-2? Were there neurological complications in patients with SARS-CoV-2 infection (SC2I)? Since SC2I can be complicated by neuropathy [6], it is recommended that patients with SC2I be excluded from the study.

The sixth point is that it is not clear why a creatinine level of <1.2 mg/dl was an exclusion criterion [1]. Do the authors mean a creatinine value of “>1.1 mg/dl”? This should be clarified.

Overall, dsSNAP can only be recommended as a tool for the early detection of neuropathy in diabetics after examining suitable groups and applying strict inclusion and exclusion criteria.

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