

Electromyography and Muscle Biopsy Should Be Supplemented by More Sophisticated Tools to Diagnose Myopathy

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With interest we read the article by Siddiqui et al about the accuracy of muscle biopsy findings in patients with a myopathic needle electromyography (EMG).¹ The authors concluded that clinicians should encourage muscle biopsy testing.¹ We have the following comments and concerns.

A major shortcoming of the study is the assumption that myopathy is associated with a myopathic EMG in each patient. A myopathic EMG can be found in only a few patients with myopathy. More frequently, the EMG of myopathy patients is normal, nonspecific, or even neuropathic.²

Another shortcoming of the study is that it did not evaluate in how many patients the EMG was recorded from the same muscle as that from which the biopsy was taken. The relation between EMG and biopsy may be stronger if both were performed in the same muscle.

We propose to consider imaging techniques (ultrasound, magnetic resonance imaging, magnetic resonance spectroscopy) for assessing the distribution of muscle involvement, the functional output, the progression of the myopathic process, and for determining the optimal muscle for biopsy.³

Differentiation between mild-to-moderate myopathy and severe myopathy on EMG remains vague. As long as no clear-cut criteria for a “myopathic pattern” are provided, this differentiation is not meaningful. It would be interesting in this respect to know which reference limits for motor unit action potential duration, amplitude, and polyphasicity the authors applied.

The authors considered only three patterns of biopsy findings (dystrophic, inflammatory, and steroid-induced). However, there are other myopathic muscle biopsy patterns, such as the myofibrillar, congenital, or the metabolic myopathy pattern.

Certain patients with myopathy may also have elevated serum lactate values, which should be correlated with the EMG and biopsy findings like other blood chemical parameters.

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We do not agree that nerve conduction studies (NCSs) can suggest a myopathic pattern.¹ NCSs investigate structures other than the muscle. NCSs are inappropriate for assessing the progression of a myopathy. NCSs should be excluded from the evaluation since it was only the goal of the study “to assess the yield of biopsy in clinically and EMG-diagnosed patients with myopathy.”

We should be informed what the authors mean with “outcome of a muscle biopsy.” The term outcome should be reserved for an illness or a patient but not for a biopsy.

It would be interesting to know in how many of the 15 patients with suspected hereditary myopathy genetic work-up revealed a causative mutation. It is worthwhile to know the criteria upon which hereditability was defined.

Among the 58 patients undergoing biopsy, 15 were suspected to have hereditary myopathy and 18 were suspected to have acquired myopathy. What type of myopathy was suspected in the remaining 25 patients?

It is curious that 17 patients without a clinical suspicion underwent biopsy. We should know the indication for biopsy in these patients. By the way, normal muscle biopsy does not exclude myopathy.

We should also know in how many patients muscle biopsy had therapeutic implications. How often changed muscle biopsy the therapeutic management?

The discrepancy between severe myopathy on EMG and normal muscle biopsy findings in 17 patients should be explained. Was the EMG recorded from muscles other than those from which the biopsy was taken?

We would like to know why a patient taking steroids underwent muscle biopsy.

Overall, the study could be more meaningful if the above-mentioned shortcomings were addressed. Since EMG and biopsy have low sensitivity and specificity, we suggest establishing genetic, diagnostic laboratories also in developing countries. For hereditary myopathy clinicians should not

encourage biopsy but rather genetic work-up, as it is more cost-effective.⁴

Ethical Approval

The research has been given ethical approval.

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Conflict of Interest

None declared.

References

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