BACKGROUND

Single fiber electromyography (SFEMG), developed by Ekstedt and Stalberg in 1960s, is the best-recognized technique for the study of motor unit microphysiology, including neuromuscular jitter.\(^1\) It is mainly used in clinically suspected ocular myasthenia gravis (MG) in the setting of negative repetitive nerve stimulation.\(^2\) However, there are currently some concerns regarding the use of SFEMG needle (SFN), in particular electrode sterilization and regular maintenance.\(^5\) Although SFN remains the gold standard electrode to estimate neuromuscular jitter, disposable conventional electrodes, such as monopolar (MN) and concentric (CN) needles have been explored and increasingly used in patients with suspected MG.\(^6\)–\(^8\)

OBJECTIVE

To investigate if MN and CN could be used indistinctly for jitter estimation in orbicularis oculi (OO), and to study the impact of selecting a specific high-pass filter (1 or 3 kHz), in patients with a final diagnosis of ocular MG and in subjects without a neuromuscular disorder.

PATIENTS AND METHODS

100 consecutive patients with the provisional diagnosis of ocular MG were included. Exclusion criteria: patients < 18-year-old, with known central or peripheral neurological disorders, weakness or fatigue in other regions than ocular muscles, ocular pain, using eye drops, on antiepileptics or drugs acting in the nervous system.

OO jitter was randomly performed with MN (50) or CN (50) in different patients (10 pairs of potentials in each eye).

RESULTS

Each OO of the same patient were also arbitrary investigated with a different high-pass filter setting (1 or 3 kHz).

CONCLUSION

Despite its unquestionable value for the diagnosis of neuromuscular transmission failure, SFN is not available in many clinics due to the concerns presented above. In our study, the mean values for jitter was similar for different low-frequency filter settings, as suggested by Patel and co-workers\(^6\), but comparison between CN and MN was an investigation not performed before. Our results favour a slight advantage for CN 3 kHz high-pass filter regarding sensitivity, without apparent impact on specificity. However, considering that different approaches are similar, each laboratory should decide for the most convenient technique and use it in routine clinical investigations of patients with suspected ocular MG.