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Prognositc Factor of Early Recovery among Patients with Idiopathic Facial Palsy

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Background

The criteria for good prognosis (House Brackmann(HB) grade I-II) of electroneurography (ENoG) has varied across studies, ≤75-90% degeneration and the overall range of positive predictive value for ENOG testing has been reported as 50% to 90%. Therefore, some patients who have ≥75-90% degeneration had recovered to HB grade I-II. The objective was to reexamine the cut off value of ENoG in predicting good prognosis of facial palsy. Furthermore, we investigated additional predictive value of early recovery in the interference pattern of facial electromyography (EMG).

Methods

This study retrospectively analyzed the medical records of patients with acute idiopathic facial palsy, including demographics date, initial and approximately 2 month-follow-up HB grading score and electrodiagnostic test conducted within first 5-14 days of onset. The patients who returned to follow-up HB grade I or II after 2 months of onset were defined as fast recovery rate group. Receiver operating characteristic (ROC) curves were constructed for ENoG and follow-up HB grading. To investigate an additional predictive value of early recovery, the interference pattern motor unit action potential (MUAP) during maximal contraction in EMG conducted within 2 weeks of onset were qualitatively analyzed and Chi-square test was used. All data were calculated by software SPSS 23. P-value was considered significant if <0.05.

Results

Of the total ninety patients, 59 patients were finally analyzed (twenty-seven men and thirty-two women). The mean time from disease onset to the test was 8.7 ± 2.5 (range, 5-14) days. Initial H-B scales were as follows: II, 7 (11.9); III, 31 (52.5%); IV, 15 (25.4%); V, 6 (10.2%). The optimum cut-off value of ENoG 5–14 days after the onset of facial palsy was 26.8% as prognostic value (sensitivity 73.0% and specificity 72.7%). Among 16 patients with ENoG value below 26.8%, 5 patients who returned to HB grade I or II at approximately 2 month-follow-up showed reduced or discrete interference pattern in needle EMG. However, the other 11 patients who showed poor recovery at 2 month-follow-up revealed no MUAP or single MUAP in needle EMG. The difference of interference pattern of MUAP

in EMG was significant regarding the number of patients between early and late recovery group (p=0.005).

Conclusion

We conclude that more than 26.8% of facial nerve degeneration on ENoG is predictive of favorable recovery rate of Bell's palsy. In our EMG analysis, interference pattern in needle EMG was additional prognostic factor of early recovery rate among patients with low ENoG value below 26.8%.