Scalp electrode placement by EC2\textsubscript{w} adhesive paste in long-term video-EEG monitoring*

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Abstract

Objective: To evaluate the usefulness of an adhesive paste named EC2\textsubscript{w} (Grass-Telefactor) in comparison with collodion, for scalp electrodes placement in patients with drug resistant partial epilepsy monitored by long-term video-EEG.

Methods: A total of 40 patients with drug resistant partial epilepsy participated in the study. In 20 patients, electrode placement on the scalp was made with collodion (group C) whereas in the remaining patients EC2\textsubscript{w} was used (Group P). After the electrode placement (T1) and after 24 h of recording (T2), the impedance of the electrodes was measured. Moreover, the time required to apply the electrodes and for their daily maintenance was calculated and recorded for all patients who entered the study.

Results: At each observation, group C showed mean values of electrode impedance significantly higher than the group P (T1: 16.8 kU; T2: 6.5 kU vs T1: 2.4 kU; T2: 4.0 kU, respectively) (P<10\textsuperscript{-5}). The time required to make the montage and to provide its daily maintenance was significantly shorter in group P than in group C [20.8 and 10.5 min vs 44.3 and 19.7 min, respectively (P<10\textsuperscript{-5})].

Conclusions: We found that the use of EC2 paste in scalp electrode attachment is less time consuming, with better recording quality as a result of lower electrode impedance values, than the use of collodion.

Significance: EC2 paste may substitute collodion in electrode placement for long-term video-EEG monitoring, with an optimal cost-benefit ratio in terms of recording performance, time consumption, and safety.

Keywords: Video-EEG recording; Collodion; EC2 electrode paste; Scalp electrode placement