Outpatient Smartphone Videos in Epilepsy (OSmartViE): Initial Results of Video Quality

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Abstract

RATIONALE: Outpatient smartphone videos in epilepsy are an unexplored diagnostic modality. In the world of telemedicine, there are several advantages to making a diagnosis or confirming a clinical suspicion without the need to see the patient. Outpatient smartphone videos in epilepsy may be used to address the impact of video quality of smartphones in people with epilepsy.

OBJECTIVE: To assess the quality of patient’s video of their habitual event and determine whether this technique is a useful adjunct in standard H & P.

METHODS: Patient generated smartphone videos (SV) were acquired prior to video EEG monitoring (VEEM). Using 500 physiologic and sensor recordings, videos were obtained from 30 patients ranging in age from 18 to 67 in the Outpatient Neurology Clinic of Mayo Clinic. Videos were reviewed by 10 epileptologists and 8 residents for duration, quality, sound, light, clarity, and patient cooperation. Videos were reviewed for presence of physical items that could influence signal quality. Videos were noted as inadequate, adequate, or inadequate requiring additional recording.

RESULTS: The final Trials 1, 2, and 3 were all noted to be inadequate (Figure 1). Inadequate videos were due to a variety of reasons: poor lighting (30%), significantly limited event (20%), or technical inadequacy (20%). Adequate videos were due to a variety of reasons: excellent lighting (30%), complete event (70%), and technical adequacy (20%). Adequate videos were due to a variety of reasons: excellent lighting (30%), complete event (70%), and technical adequacy (20%). The most reported points that significantly hindered the ability to make a clinical diagnosis were related to environmental factors (11%), technical factors (9%), and patient factors (7%).

CONCLUSIONS: Most SV were inadequate in clarity, audio and light according to physician review. The use of the device was limited to the patient’s ictal period. Inadequate videos were due to technical inadequacy (20%) or constraints of the patient’s ictal period. Technical inadequacy of videos was noted in 70% of all videos.

Table 2

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Figure 1

Video Quality Points that Significantly Hindered the Ability to Make a Clinical Decision

Figure 2

Technical Points that Significantly Hindered the Ability to Make a Clinical Decision

Discussion

Most SV were inadequate in clarity, audio and light according to physician review. The use of the device was limited to the patient’s ictal period. Inadequate videos were due to technical inadequacy (20%) or constraints of the patient’s ictal period. Technical inadequacy of videos was noted in 70% of all videos.

REFERENCES


