

CORDLESS PHONE INDUCED ARTIFACT ON EEG

Sir,

The electroencephalography (EEG) record is presumed to represent only cerebral activity. In reality, it includes activity that is not of cerebral origin. The activity of the brain is the signal of primary concern, and any other activity that appears in the record will deteriorate the brain signal. These undesired brain activities are called artifacts or noise (Saunders, 1979).

It has been noted that high frequency radiation from radio and television transmitters may overload EEG amplifiers and cause them to block. The pens may deflect upward or downward to full excursion and the EEG cannot be recorded. Problems of this type vary with respect to cause. They often occur in intensive care units where electronic devices using radiofrequency carriers are connected to the patient. Hospital paging systems are a frequent

source of this class of artifact. Slow activity may appear in the EEG as a result of continuous or intermittent, relatively high intensity radio frequency carriers (Tyner et al., 1985). We are reporting a case of cordless phone induced artifact on EEG.

Mrs. L, a 58 years old lady with complaints of episodic loss of consciousness was sent to EEG laboratory for EEG investigation. During recording, the EEG technologist noted that somebody was talking on a long distance (25 km.) cordless phone outside the EEG lab. which led to full excursions of the electrodes with intermittent bursts of spikes being recorded. This abnormal pattern stopped as soon the person was asked to switch off the cordless phone and the patient continued to have a normal recording. There was no other obvious cause for this artifact and it was well correlated with the switching on and off the cordless phone.

At times it is difficult for even the most experienced technologist or electroencephalographer to distinguish between the fact, which is the EEG signal and which is the artifact. Because artifacts may mimic abnormality, it is imperative that the sources of artifacts be identified accurately. An artifact and its cause usually are obvious to the technologist at the time of the recording but when the EEG is being interpreted (often long after the technologist has gone for the day), the record may take on an entirely different appearance, in a different setting, under a different pair of eyes. Therefore it is essential that artifacts be clearly identified by the technologist and labeled during the recording. Consultation with the manufacturer of the EEG instrument and with hospital biomedical engineers may be necessary to solve this specific problem. Shielding may be necessary if the artifact cannot be reduced by other means (MacGillivray et al., 1974). However, this should be a method of last resort because of the expense involved.

REFERENCES

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