

False alarms from epilepsy alarms in The Danish Epilepsy Centre, Dianalund.

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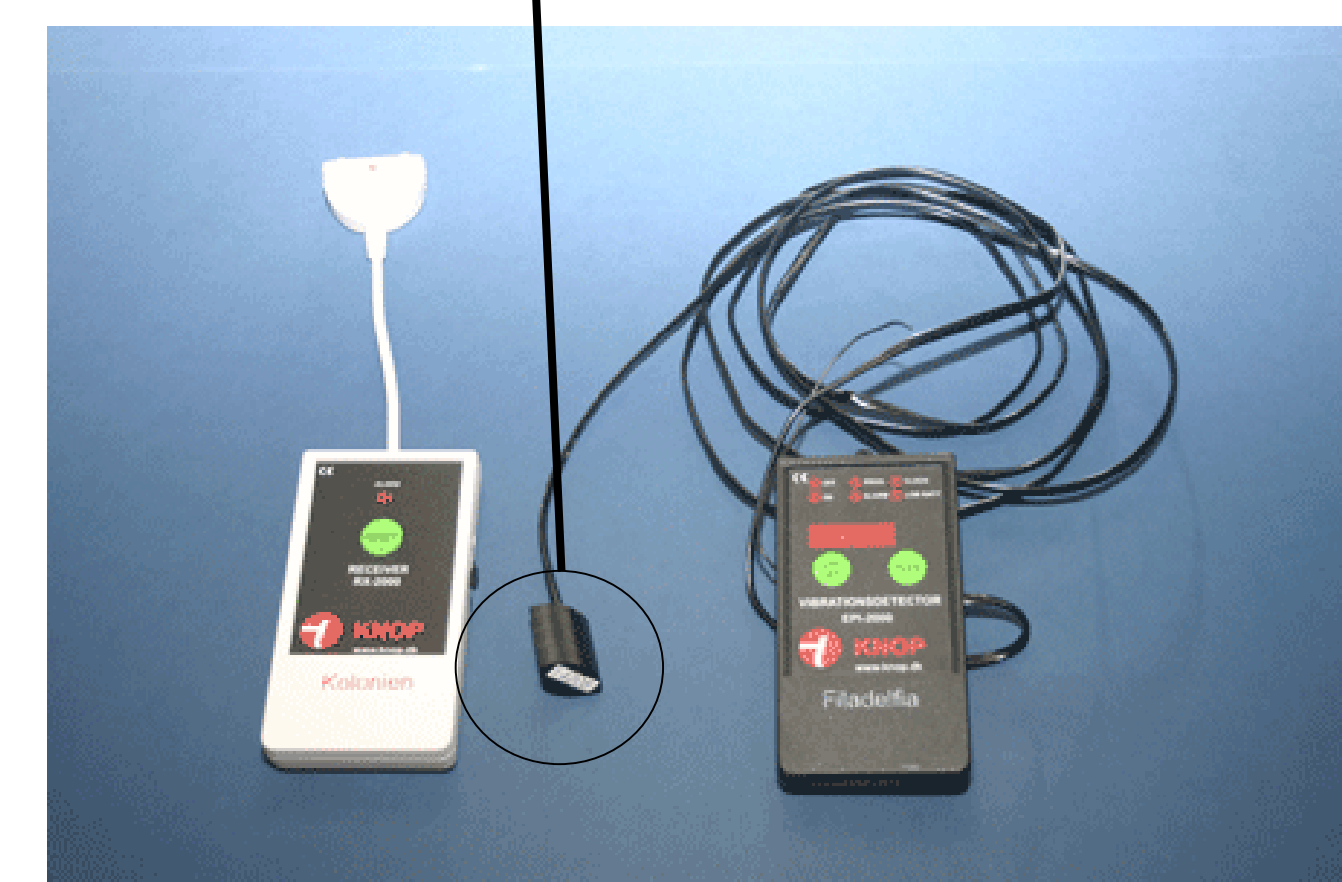
Purpose

To assess the specificity of bed alarms and pulse oxymeters used for the detection of epileptic seizures.

Methods

Patients admitted to the Danish Epilepsy Centre, Dianalund who were considered to be at increased risk of generalised convulsive seizures, were supervised by video-cameras during the time spent in bed. The signals from the video cameras were transmitted to a central supervision unit, where a nurse was watching the screens (see below). In case of seizure, the ward was notified. The inclusion period was from April 2004 to April 2006.

The beds in the epilepsy centre were all equipped with a bed alarm (see opposite side), which reacts to vibrations (threshold set to 7 vibrations and a delay time of 15 arbitrary units). The patients under supervision carried a pulse oxymeter (see below), which reacts in case of a change in pulse (limits set individually) or decrease in oxygen saturation (limit set to 85%). The staff of the ward registered alarms and compared them with the information about seizures given by the central supervision unit.



Epilepsy bed alarm KNOP 2000



Central supervision unit – The nurse in the unit supervises up to 10 patients in different wards at the same time.



Pulse oxymeter Nonin Avant 960030

Results

Number of patients	Age	Supervision period	Number of seizures
150 (71 females, 79 males)	1-63 years (average 24 years)	1-49 days (average 8 days)	2534

Number of false bed alarms	Number of false pulse oxymeter alarms	Frequency of false bed alarms	Frequency of false pulse oxymeter alarms
363	1059	0.75 per 24 hours	2.19 per 24 hours

Conclusion

The study shows that false alarms by both bed alarms and pulse oxymeters occur frequently, which means that the two types of alarms have a poor specificity. As the sensitivity of the bed alarms is 15-20%, and the sensitivity of the pulse oxymeter is 30-35% (1), the clinical value of the two alarm types is not sufficient. There is a need for the development of better technology for the detection of epileptic seizures in patients at high risk.

Reference

1. Mathiasen R, Hansen CP
Sensitivity of epilepsy bed alarms and pulse oxymeters in the Danish Epilepsy Centre, Dianalund.
Abstract, 26th International Epilepsy Congress, Paris, August 2005