INTRODUCTION

Polysomnography (PSG) is the most widely-used technique for the objective evaluation of normal and pathological sleep. Sleep study technology is evolving in the direction of systems which are portable (1) and miniaturised (2).

OBJECTIVES

To compare the EEG, EOG and EMG readings and the leg movements recorded using ActiWave (CamNtech) with those obtained using polysomnography (MEDATEC).

PARTICIPANTS

A group of 15 patients (13 women, 2 men) with a mean age of 46 (age class: 30-62) took part in a study lasting one night at the Sleep Centre.

METHODS

PSG1: Brainnet (BR-MEDATEC)
PSG2: ActiWave (AW-CamNtech)-Embletta Gold (ResMed)

The recordings were synchronised and began between 8.00 p.m. and midnight, ending between 6.30 a.m. and 7.30 a.m.

ActiWave EEG, EOG and EMG units were initialised on a MultiDock reader (ActiWave software).

Analyses of PSG1 using Brainnet (MEDATEC)
Analyses of PSG2 using RemLogic (ResMed)

RESULTS

Double blind period by period recording of sleep stages in accordance with regulations laid down by AASM (3).

Analyses of sleep parameters
Latent sleepiness (LS)
Sleep-waking cycle (SWC)
Total sleep time (TST)
Effectiveness of sleep (ES)

There are no significant differences, except for the sleep-waking cycle parameter (p<0.001)

STATISTICAL ANALYSES

Test t: Significance of links between sleep parameters and sleep stages for AW and BR.
Spearman Rho test: correlations between sleep parameters and sleep stages for AW and BR.

CONCLUSIONS

Very good correlation of sleep stages and sleep parameters between ActiWave and Brainnet. It seems to us that ActiWave is a good mini-polysomnograph for recording sleep disorders. Other studies need to be carried out to confirm this validation.

The RemLogic software integrates and analyses the electrical signals for ActiWave.

REFERENCES

4. E.P. Bradley Sleep Laboratory, Brown University, Providence, RI, USA