Title: A portable device for assessment of daytime sleepiness

Body: Many studies have shown that sleepiness is a major cause of traffic accidents. Patients with obstructive sleep apnoea usually have daytime sleepiness. Epworth sleepiness scale has been used to subjectively assess daytime sleepiness in patients with OSA, but it was far from perfect. Osler test was a useful alternatively objective test for daytime sleepiness and has been used in clinical practice. However, Osler test was usually performed in hospital. It is important to develop an easy-to-use portable device to assess daytime sleepiness at home. We have recently developed a portable device based on the principles of Osler test. The purpose of the present study was to determine whether the onset of sleep detected by our portable device was the same as that detected by conventional polysomnography. Eight patients with OSA and eight normal subjects were studied. Sleep latency as judged by portable device was the same as that judged by conventional polysomnography and sleep latency measured from patients with OSA (18.1±9.1 minutes) was significantly shorter than that measured from normal subjects (> 40minutes), p<0.01. In conclusion, the portable device designed for use at home was as useful as conventional polysomnography in assessment of daytime sleepiness. This work was funded by NSFC (Grant No. 81120108001).