

Correspondence

Monitoring of activity by wrist accelerometer in patients with atopic dermatitis

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Hon *et al.*¹ recently reported the results of a questionnaire evaluating the effect of age and gender on quality of life

in children with atopic dermatitis (AD). Bender *et al.*² reported that increasing severity of AD was positively related to a decline in sleep quality because of increased itch. Patients with AD often report disturbed sleep and daytime fatigue because of itch.^{3,4} Few case studies have provided objective measurement of scratching, using an

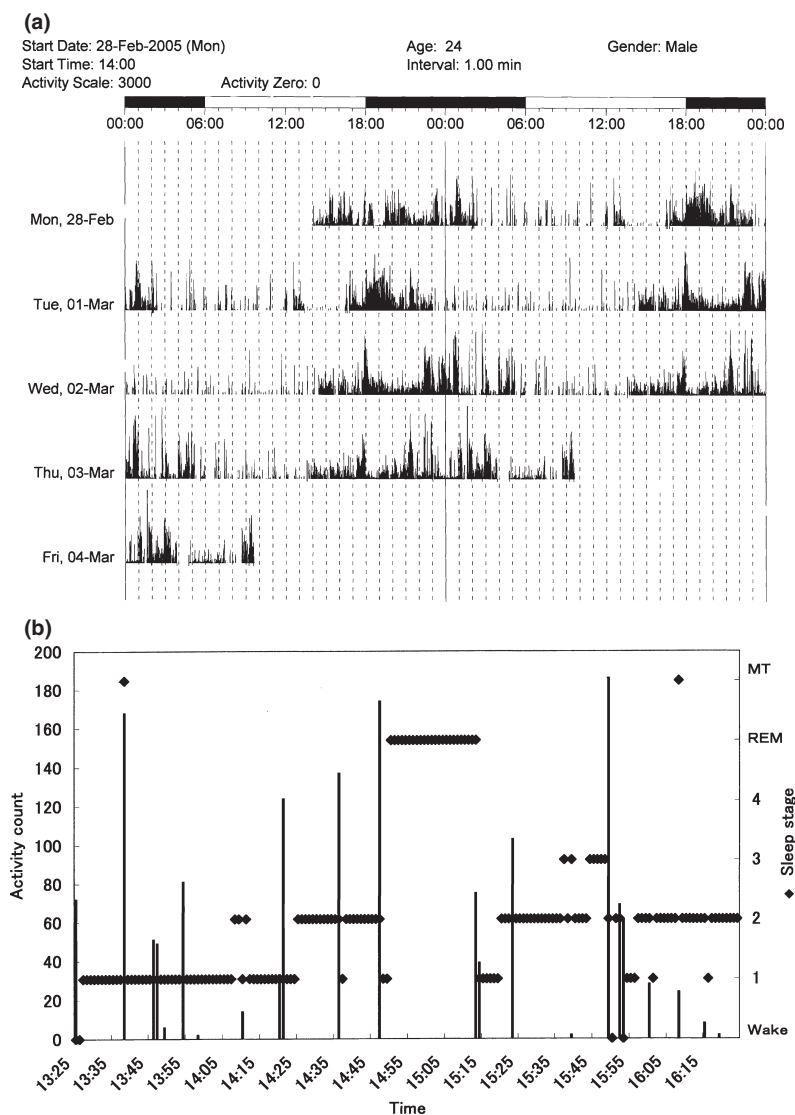


Figure 1 (a) Actogram taken over five consecutive days; (b) activity count by wrist sleep monitor and sleep stage by polygraph.

activity device. This study reports a typical case of AD monitored by activity device and presents the results of a polygraphy recording during sleep.

Ethics approval was obtained for the study and the participant provided written informed consent.

A 24-year-old student with AD, who was on continuous anti-allergy drugs (fexofenadine hydrochloride and hydroxyzine) twice a day took part in the study. He wore an activity device (Actiwatch®; Mini Mitter Co. Inc., Sunriver, OR, USA) for four consecutive days and nights. The device was installed on the wrist of the nondominant arm. The sampling frequency of the device was set at 32 Hz and the sensitivity at 0.05 G, using 1 min as the unit, and the number of body movements was calculated by the summation of active electricity counts.

The tabulated result (actogram) showed that movement occurred predominantly during the night (Fig. 1a). The subject reported no marked subjective sleep disturbance and no daytime fatigue, although he sometimes showed daytime sleepiness. To identify the relationship between sleep and body movement, the subject was monitored by polygraphy in addition to the activity monitoring on the fifth day, during a nap taken from 13.30 to 16.30 hours on a Tuesday. He did not show very much deep sleep before the onset rapid eye movement (REM) sleep, and although an O₂ saturation monitoring device was clipped to the second finger of his nondominant arm, there were body movements in shallow stages (stages 1 and 2) during the nap (Fig. 1b). In contrast, no body movement was observed during REM or stage 3 sleep. The student reported that there was no difference in the sleep between the nap and the sleep he usually had at night, despite the presence of the sleep-monitoring devices.

This case study shows that AD disturbs sleep due to itching, although in this case, the participants subjective perception of his sleep was not related to objective movement. As this monitor is an objective measure of sleep quality and can be used in the patient's home, it may be an easy and useful method of monitoring the effect of treatment on AD.

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