



PRURITUS

ACTIVITY DURING SLEEP MEASURED BY A SHEET-SHAPED BODY VIBROMETER IS CORRELATED WITH SEVERITY OF ATOPIC DERMATITIS IN ADULTS: A COMPARISON WITH WRIST ACTIGRAPHY MEASUREMENT

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Introduction: Atopic dermatitis (AD) is associated with sleep disturbance. Objective sleep measurements are recommended for evaluating this association more accurately compared to subjective assessment alone. Wrist actigraphy (WA) devices are often used for this purpose; however, they also detect wrist motion due to scratching while sleeping. Therefore, WA may underestimate sleep time. There is a need for more reliable way to assess patients sleep objectively.

Objective: We aimed to measure sleep of adult patients with AD of various severities using a sheet-shaped body vibrometer (SBV) and compared the results with those measured by WA.

Materials and Methods: Simultaneous measurements of activity during sleep via WA and SBV were performed in 20 outpatients with AD for 5 to 10 days. Mean activity count per minute (ACT) and sleep efficiency (SE) were obtained via each device. Severity of AD was evaluated by severity scoring of AD (SCORAD), serum thymus and activation-regulated chemokine (TARC), serum total Immunoglobulin E, and peripheral eosinophil counts.

Results: ACT measured via WA was significantly correlated with SCORAD (Spearman's correlation coefficient (r_s)=0.64, p =0.002) and TARC (r_s =0.60, p =0.005). ACT obtained via SBV was significantly correlated with TARC (r_s =0.58, p =0.008). ACT obtained via SBV was significantly correlated with that obtained via WA (r_s =0.63, p =0.003). SE obtained via WA resulted in significantly lower values compared with that obtained via SBV (69.7 ± 9.4 vs. 82.9 ± 9.3 , $p < 0.001$), although SE via WA was highly correlated with SE via SBV (r_s =0.82, $p < 0.001$).

Conclusions: Results from this study suggest that activity during sleep, presumably composed of scratching and the other motions of the body, is more vigorous in patients with





severe adult AD. This was successfully demonstrated by SBV and WA assessment. However, we consider that ACT measured by WA is more suited for the scratch evaluation and SE measured by SBV is preferable for sleep evaluation.

