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Title: Usefulness of SD-101 for screening of sleep apnea syndrome

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Body: Objective: The SD-101 is a sheet-like device for screening of sleep apnea syndrome (SAS). It examines sleep disordered breathing by sensing the alterations of body loading corresponding to respiratory movement. Polysomnography (PSG) is the essential monitor for the diagnosis of SAS. However, PSG is not suitable for screening device for all people suspected of SAS. A simple and easy device is needed for screening of many SAS patients. For evaluation of the usefulness of SD-101 in more detail, the accurateness of SD-101 was examined about detection of hypopnea and apnea. Subjects and Methods: Forty four hospitalized patients were enrolled (aged 61.0±13.8, 37 males, Body mass index (BMI) 26.0±4.69kg/m²). They were examined by both PSG and SD-101. They were classified into two group, hypopnea group (Group H, 17 patients) and apnea group (Group A, 27 patients). Group H had hypopnea index accounted for more than 50% of Apnea Hypopnea Index (AHI). Group A had apnea index accounted for more than 50% and equal of AHI. We evaluated correlation between AHI of PSG with respiratory disturbance index (RDI) of SD-101 in each group. Result: RDI of SD-101 had very close correlation with AHI of PSG (r 0.886 p< 0.001). The sensitivity and specificity of the examination using SD-101 were 80% and 100%, respectively. RDI of SD-101 in Group H had lower correlation with AHI of PSG than RDI of SD-101 in Group A. Group H (r 0.548 p<0.05), Group A (r 0.886 p<0.001) The sensitivity of Group H (66.6%) was lower than that of Group A (88.0%). Conclusion: RDI of SD-101 has very close correlation with AHI of PSG, however SD-101 may not detect hypopnea exactly in hypopnea predominant patients.