Wearable Devices Could Reduce the Risk of Injury in Parasomnias Phenotypes

Authors : Vivian Correa

Abstract : Hypothesis There are typical patterns - phenotypes - of sleep behaviors by age and biological sex groups of parasomnia patients where wearable devices could avoid injuries. Materials and methods We analyzed public video records on sleep-related behaviors likely representing parasomnias, looking for phenotypes in different groups. We searched public internet databases using the keywords "sleepwalking", "sleep eating," "sleep sex", and "aggression in sleep" in six languages. Poor-quality vide-records and those showing apparently faked sleep behaviors were excluded. We classified the videos into estimated sex and age (children, adults, elderly) groups; scored the activity types by a self-made scoring scale; and applied binary logistic regression for analyzing the association between sleep behaviors versus the groups by STATA package providing 95% confidence interval and the probability of statistical significance. Results 224 videos (102 women) were analyzed. The odds of sleepwalking and related dangerous behaviors were lower in the elderly than in adults ($P<0.025$). Females performed complex risky behaviors during sleepwalking more often than males ($P<0.012$). Elderly people presented emotional behaviors less frequently than adults ($P<0.004$), and females showed them twice often as males. Elderly males had 40-fold odds compared to adults and children to perform aggressive movements and 70-fold odds of complex movements in the bed compared to adults. Conclusion Unlike other groups, the high chances of adults being sleepwalkers and elderly males performing intense and violent movements in bed showed us the importance of developing wearable parasomnia devices to prevent injuries.

Keywords : parasomnia, wearable devices, sleepwalking, RBD

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