

Abstract

Purpose: The purpose of this study is to objectify the sensitivity and specificity of the ambulant screening device ApneaLink® in comparison to polysomnography in children with chronic diseases which are correlating with sleep disordered breathing, and healthy children with suspicion upon sleep disordered breathing.

Methods: ApneaLink® is a portable ambulant screening device to diagnose apneas, hypopneas and oxygen desaturations during sleeping time. Its validation in children is issue of this study whereas the same in grown ups is already done. Polysomnography is the diagnostic goldstandard in finding sleep disordered breathing during sleep in children and grown ups. During the hole night sleep of the 60 tested (reviewed) children, between 0 and 22 years, we accomplished a parallel measurement with polysomnography and ApneaLink® on them. The parameters which were investigated: hole sleeping time, apnea-hypopnea-index, average O₂ saturation (SaO₂), minimal SaO₂, sleepingtime with SaO₂ under 90%.

Results: This study included 60 patients, 17 girls and 43 boys, which where healthy or with chronical disease, with suspicion of having sleep disordered breathing. Polysomnography results determined 28 patients (47%) with a diagnosis of OSA. ApneaLink® results classified 29 patients as positive and 31 as negative. Further analysis of the positive and negative ambulant screening device results showed a sensitivity and specificity of 82 % and 84 %, with a negative and positive predictive value of 84% and 82%, respectively. Parts of the ApneaLink® results in the group of children under 10 years (specifity 72 %) were quite poorer than in the other groups, which included older children and adolescent patients.

Conclusions: These results suggest that an ambulant device like ApneaLink® alone is insufficient as a screeningtool to detect OSA in children under an age of 10. Other screening methods need to be identified in the near future.

Keywords: ApneaLink®, ambulant screening device, sleep disordered breathing, polysomnography, validation