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Title: Reactive and proactive control of cognitive functions in obstructive sleep apnea

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Body: Neuropsychological studies dissociated two types of cognitive control functions: reactive control and proactive control (Braver, T. et al. Trends in Cognitive Sciences 2012; 16: 106-113). Although, obstructive sleep apnea (OSA) is associated with cognitive decrement, there is an ongoing debate on whether these include detrimental performance in conflict tasks (Verstraeten, E. et al. Sleep. 2004; 15;27(4):685-93.). In this study, we investigated reactive and proactive control of cognitive functions in OSA patients. In this ongoing study data from 21 participants were evaluated. Participants grouped according to Apnea-Hypopnea Index (AHI) in to two, such that Group A's AHI>30 (n=13), and Group B's AHI≤15 (n=8). They were participated in Flanker and Simon to measure reactive control and Stroop to measure proactive control. Stimulus presentation and data collection was done automatically on a standard monitor and PC. In Group A patients (with severe OSA), reactive control observed with Flanker task was significantly different compared to performance of Group B participants (normal and patients with mild OSA). However, other test did not revealed any significant difference.

Comparison of Cognitive Control Performance In Groups

Control Index	Group A (AHI>30)	Group B (AHI≤15)	p
Flanker Reactive Control Index (msec)	-47.93	57.62	<0.001
Simon Reactive Control Index (msec)	51.27	65.05	=0.59
Stroop Proactive Control Index (msec)	94.15	59.34	=0.72

In conclusion, these preliminary results suggested that while proactive control is intact in severe OSA patients, reactive control declines when control is triggered by stimulus-stimulus conflict.