Deficits in OSAS and Neurological Patients - Influence in Traffic Safety

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INTRODUCTION: Apart from a multitude of physical complaints, obstructive sleep apnea syndrome (OSAS) patients and neurological patients suffer from excessive daytime drowsiness, reduced sustained attention, limited memory processes and cognitive functions. Important factors in this can be the severity of the disorder on the one hand, and the duration of prior therapy on the other hand. Among other aspects, such a decline in performance influences the persons affected in their ability to drive a car.

ISSUE: The objective of this study was to investigate the influence of these symptoms and the effect of nCPAP therapy on OSAS patients resp. neurological rehabilitation on patients suffering from stroke, cerebrovascular diseases, brain trauma, brain tumor etc. During admission to the clinic, these patients were examined neurologically and neuropsychologically and were tested e.g. with Carda, a driving simulator (vigilance), which was developed and standardized at Clinic Ambrock. Measurement of vigilance was invariably carried out in the afternoon and took place in a quiet, sound-proofed room.

FINDINGS: Testing of vigilance achievements revealed a highly significant difference between healthy persons and OSAS patients (p < .001) resp. neurological patients (p < .001). After more than 6 weeks nCPAP resp. 3 weeks of neurological rehabilitation, the OSAS patients resp. the neurological patients’ quality of life improve to a significant degree (both patient groups: p < .001). Analysis of the degree of severity showed for OSAS patients no significant difference, for neurological patients a significant difference between mild and severe (p = .020) (concerning vigilance achievements). The comparison between different clinical kinds of neurological disorders concerning vigilance and the research of influence of the OSAS and of the neurological diseases on driving fitness (traffic safety) is yet to be carried out.

DISCUSSION: The study revealed that patients with OSAS and neurological diseases show problems and deficits concerning their vigilance achievements and their memory processes. The improvement of vigilance achievements and memory processes should show a lower driving fitness (traffic safety) in untreated patients and increasing traffic safety in patients under rehabilitation.

Keywords: Sleep apnea, Traffic safety, Neurological patients