

PRESS RELEASE

Symposium: Diagnostic Process to Assess Severity of SRBD

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Biomarkers and ASIC: New parameters result in improved prognoses

Kassel – Biomarkers are firmly established in diagnostics and in risk stratification of cardiovascular disease. It has recently been shown that diverse biomarkers are correlated with the existence and with the severity of Sleep-Related Breathing Disorders (SRBD), such as Obstructive Sleep Apnea Syndrome. Another innovative concept known as ASIC, which uses the pulse wave signal, expands the standard polysomnographic recording by another decisive diagnostic detail: the autonomous and vascular variability of an individual as the basic dimension in assessing cardiovascular risk.

Among the biomarkers used in cardiology, diverse interleukin (IL-6, IL-8), cell adhesion molecules, MMP-9, NT-pro-BNP, the highly sensitive C-reactive protein and the tumor necrosis factor-alpha provide indications of the severity of SRBD. Patients with obstructive sleep apnea, for example, show an elevated expression of adhesion molecules, increased thrombocyte aggregation, elevated inflammatory markers such as tumor necrosis factor A, interleukin-6 and C-reactive protein and signs of an increased oxidative potential with formation of free radicals in leukocytes and increased lipid peroxidation in blood.

Biomarkers provide more information

"These biomarkers can give us additional information about the severity of sleep-related breathing disorders," said PD Dr. Thorsten Kälsch (University Hospital Mannheim) at a scientific seminar held by Weinmann at the German Sleep Society Congress in Kassel. "Whether they can be seen as discrete risk predictors or whether they stand in direct connection with cardiovascular comorbidity remains unclear at this time and must be given critical consideration."

ASIC: New concept uses pulse wave signal

The idea for a new technological concept known as ASIC arose during the search for a reliable marker for increased cardiovascular risk. With support from Weinmann, a team under Professor Jan Hedner and PD Dr. Ludger Grote at Sahlgrenska University in Gothenburg is conducting research into ASIC (Autonomic State Indicator Concept), an innovative method based on pulse wave signals.

ASIC measures cardiovascular risk

"We currently do not know whether a certain degree of SRBD strikes an already damaged cardiovascular system and causes additional damage there," said Dr. Grote. "Available diagnostic methods are often of limited use only." The researchers are therefore looking for additional physiological indicators which can support doctors in making decisions about further diagnostic tests and potential therapy options. A new approach in this conceptual direction, ASIC was systematically developed in order to permit conclusions to be drawn about the autonomous and vascular variability of a patient on the basis of new indicators in pulsoximetry. These parameters were compiled into a cardiovascular risk factor, which has been shown to correlate well with traditional and established risk profiles.

Better reliability in diagnosis and therapy decisions

The new parameters allow findings about the extent of prior damage to the cardiovascular system. The objective of the ASIC project is to use the results as a basis for decisions on the need for different types of medical intervention. "With this project we would like to improve the diagnostics of sleep-related breathing disorders and to assess the related cardiovascular risk," said Dr. Grote. This diagnostic method can quickly identify patients with high cardiovascular risk. The new diagnostic method, according to Grote, could become important particularly to patients whose cardiovascular risk is still unknown and may also attribute special relevance to the developing risk in other, already diagnosed patients. This applies to many patients with SRBD and to those already affected by cardiological disorders. Conclusions regarding secondary and tertiary prevention or therapy regimes can be more selectively drawn from this supplemental data.

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Background: Weinmann

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