

## PRESS RELEASE

### Weinmann-Symposium: Effects of Sleep-Related Breathing Disorders on Biomarkers of Systemic Illnesses

Date: 10 April 2008

---

## Biomarker for Heart Disease and Arteriosclerosis: Improved Prevention through CPAP Therapy?

**Lübeck – Modern biomarkers may contribute in the future to the development of early individualized preventive strategies for cardiac disease. Even today endothelial dysfunction, one of the causes of arteriosclerosis, can be reversed by treatment of sleep-related breathing disorders (SRBD). Whether that can prevent cardiac infarction or stroke remains a question for researchers.**

The assessment of a patient's cardiovascular risk is generally based on such factors as cholesterol levels, hypertension, smoking and obesity and more recently, diabetes mellitus and limited tolerance of glucose. Studies have shown that all of these factors increase the incidence of a cardiovascular event. "These cardiovascular risk factors are very useful in estimating the risk in the general population," explained Prof. Dr. Mathias Pauschinger (Nürnberg) at a symposium held during the 49<sup>th</sup> annual convention of the German Association of Pneumology and Respiratory Medicine (DGP) in Lübeck. "But they are not enough for the assessment of an individual's cardiovascular risk profile." Modern biomarkers are much more suitable. "It may be possible in the future to use them to start preventive treatment strategies very early on," said Dr. Pauschinger. Biomarkers that are particularly suitable, he said, are the C-reactive protein, the ischemic risk markers cardiac troponin T and I, creatinine kinase MB and myoglobin. Among the hemodynamic biomarkers, the Brain Natriuretic Peptide (BNP) and the NT-proBNP are of special relevance.

#### Proven Prevention Strategies

Coronary risk factors, however, still have to be counteracted first of all by changes in lifestyle. Less smoking, more exercise and a healthy low-fat diet can reduce the risk. In addition, medication can be used in treatment of high blood pressure, diabetes and elevated blood lipids. "With regard to the new risk markers, there is currently no therapeutic strategy that would lead to an individual risk reduction," explained Dr. Pauschinger. "But I am hoping for some exciting developments in the future that will open up completely new chances for prevention."

### **Better sleep throughout the night**

Another area for prevention, according to P.D. Dr. Hans-Werner Duchna (Bochum), has not yet been fully exploited: optimizing sleep at night. Recent research has shown a correlation between cardiovascular diseases such as hypertension, coronary disease, atrial fibrillation and stroke with Sleep-Related Breathing Disorders (SRBD) such as sleep apnea. SRBD is also closely related to heart failure, such as Cheyne-Stokes breathing.

### **Significance of endothelial dysfunction**

Of special significance is the endothelial dysfunction, which plays an important role for patients with SRBD in the predicting of vascular ailments such as hypertension, arteriosclerosis, coronary disease and heart failure. "Different teams have shown that patients with SRBD have diverse biochemical changes in the blood that indicate an inflammatory disorder of the endothelial cell-induced regulation process," said Dr. Duchna. Patients with Obstructive Sleep Apnea Syndrome (OSAS) have an increased 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 elevated oxidation potential with formation of free radicals in leukocytes and increased lipid peroxidation in the blood.

### **SRBD has a vaso-protective effect**

Furthermore, other studies have shown a direct pathophysiological relevant connection between OSAS and classic cardiovascular risk factors such as high blood pressure, diabetes, elevated blood lipids and the degree of arteriosclerosis. "Consistently applied treatment of OSAS, with CPAP (Continuous Positive Airway Pressure), for example, can lead to the restoration of sound endothelial cell function," said Dr. Duchna. CPAP therapy also has a vaso-protective function. In anticipation of upcoming research, Dr. Duchna said, "Future studies will show whether the restoration of endothelial cell function through SRBD therapy can lead to a reduction of cardiovascular events such as cardiac infarction or stroke."

(4386 characters)

---

#### **Press Contact:**

Weinmann Geräte für Medizin GmbH+Co.KG ■ Kronsaalsweg 40 ■ 22525 Hamburg ■ Germany

Juliane Papendorf ■ Press Officer

T: +49 (0)40-5 47 02-562 ■ F: +49 (0)40-5 47 02-469

E: j.papendorf@weinmann.de ■ www.weinmann.de