Press Release

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New Cardiac Marker Copeptin accelerates Diagnosis of Acute Myocardial Infarction (AMI)

Hennigsdorf, July 2, 2009. The novel biomarker Copeptin can improve patient management in the Emergency Department (ED). The study "Incremental Value of Copeptin for Rapid Rule Out of Acute Myocardial Infarction (AMI)" was recently published in the Journal of the American College of Cardiology (JACC).

One of the major challenges in emergency medicine is the early diagnosis of Acute Myocardial Infarction (AMI) in patients presenting with chest pain or other symptoms suggestive of this disease. Until now Troponin is the most effective biomarker. According to study data, the combination of Troponin and Copeptin, a novel cardiac biomarker from BRAHMS Aktiengesellschaft, allows a rapid and reliable rule out of AMI right at the initial blood draw when the patient presents to the Emergency Department (ED).

Approximately 15 million patients present to the Emergency Department (ED) with symptoms suggestive of Acute Myocardial Infarction (AMI) every year. The vast majority (70 to 80%) of them finally prove not to have AMI. However, due to a delayed increase of circulating levels of Troponin it takes up to six hours before it can be measured. Therefore serial blood sampling is recommended by the European Guidelines. Study results indicate that by testing for both markers, along with an Electrocardiogram (ECG) and the clinical findings, approximately two-thirds of the patients would not need to wait those six hours in the ED for the second Troponin test. This may obviate the need for prolonged monitoring and serial blood sampling in the majority of patients.

"In the very situation of a patient presenting to the Emergency Department (ED) with symptoms suggestive of Acute Myocardial Infarction (AMI) the clinician quickly needs to know whether the person is in real danger or not. Ruling out AMI in this setting is an urgent and unmet need. The use of Copeptin together with Troponin can accelerate the rule out of AMI and thus improves patient management in the ED immensely. Two thirds of these patients may be ruled out with the first blood draw and most of them probably could leave the ED very soon," explained Dr. Tobias Reichlin from the Department of Internal Medicine at the University Hospital, Basel, Switzerland. While the concentration of Troponin rises four to six hours after the event of an AMI, concentrations of the new Copeptin biomarker are highest right after the onset of symptoms and then begin to drop. This difference makes the use of the combination of the two extremely promising.

The study was conducted in the University Hospital of Basel, Switzerland. In 487 consecutive patients presenting to the Emergency Department (ED) with symptoms suggestive of Acute Myocardial Infarction (AMI), the research team measured levels of copeptin at presentation, using a novel sandwich immunoluminetric assay in a blinded fashion. The final diagnosis was adjudicated by two independent cardiologists using all available data.

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The adjudicated final diagnosis was Acute Myocardial Infarction (AMI) in 81 patients (17%). Copeptin levels were significantly higher in AMI patients compared with those in patients having other diagnoses (median 20,8 pmol/l vs. 6,0 pmol/l, p<0,001). The combination of Troponin and Copeptin at initial presentation resulted in an area under the receiver-operating characteristic curve of 0,97 (95% confidence interval: 0,95 to 0,98), which was significantly higher than the 0,86 (95% confidence interval: 0,80 to 0,92) for Troponin alone (p<0,001). A Copeptin level < 14 pmol/l in combination with a Troponin ≤ 0,01 µg/l correctly ruled out AMI with a sensitivity of 98,8% and a negative predictive value of 99,7%.

Copeptin, the C-terminal part of the vasopressin prohormone, is a marker of acute endogenous stress. Arginine vasopressin (AVP) is a key hormone in the human body. Despite the clinical relevance of AVP in maintaining fluid balance and vascular tone, measurement of mature AVP is difficult and subject to preanalytical errors. Recently, Copeptin, a 39-amino acid glycopeptide that comprises the C-terminal part of the AVP precursor (CT-proAVP), was found to be a stable and sensitive surrogate marker for AVP release, analogous to C-peptide for insulin. Copeptin measurement has been shown to be useful in various clinical indications, including the diagnosis of diabetes insipidus and the monitoring of sepsis and cardiovascular diseases.

Copeptin is scheduled for fall introduction on the European market and joins a series of excellent BRAHMS biomarkers for cardiovascular diseases. The study results were already presented in a Late Breaking Clinical Trial Session at the ACC-Meeting in March. It marks the third time in just a few months that BRAHMS, with a new cardiac marker, succeeded in joining a Late Breaking Clinical Trial Session at a major cardiology congress.

The BRAHMS Aktiengesellschaft conducts researches, develops, produces and markets innovative diagnostic biomarkers. It is one of the three largest biotechnology companies in Germany. The company sells its products in more than 65 countries via its own subsidiary companies and sales organizations as well as laboratory systems from its own production and globally operating licensees. The headquarter of BRAHMS is at Hennigsdorf / Berlin, where about 220 out of 400 of the world wide employees of the company are posted.

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