MediaRoom

Copeptin now in the new European Society of Cardiology Guidelines for the Diagnosis and Treatment of Pulmonary Embolism 2019

Copeptin mentioned as an important prognostic biomarker for risk stratification in patients with acute pulmonary embolism

HENNIGSDORF, Germany, Nov. 21, 2019 /PRNewswire/ -- Acute pulmonary embolism is one of the leading causes for cardiovascular death worldwide. Clinicians can now rely on copeptin as a prognostic biomarker for the risk stratification of patients with acute pulmonary embolism, which was recently included in the new guideline from the European Society of Cardiology (ESC) for the diagnosis and treatment of acute pulmonary embolism [1]. The guideline was published in the European Heart Journal and presented at the ESC Congress in Paris, France.

Acute pulmonary embolism is caused by blood clots that usually form in the leg veins and then embolize into the pulmonary arteries. The affected patients suffer from shortness of breath and in severe cases right ventricular failure occurs and may result in cardiogenic shock. Data from Germany show that the frequency of the disease increased in the period 2005 to 2015, especially among older patients. In 2015, about 14 percent of German in-patients with pulmonary embolism died during the in-hospital stay [2].

"The results of this epidemiological study confirm that acute pulmonary embolism is a frequent and potentially life-threatening disease," said Mareike Lankeit, co-author of the guideline and physician at the Department of Internal Medicine and Cardiology, Campus Virchow Klinikum, Charité – University Medicine Berlin, and Center for Thrombosis and Hematosis, University Medical Center Mainz, Germany.

The critical determinant of prognosis in patients with pulmonary embolism is the occurrence and extent of right ventricular dysfunction and failure. Therefore, the new ESC guideline recommends risk stratification with assessment of right ventricular function in all patients with acute pulmonary embolism. Importantly, risk stratification is mandatory to define the appropriate risk-adapted management strategy. In addition to clinical parameters, aggravating conditions such as comorbidities and imaging, such as echocardiography and computer tomography, laboratory biomarkers provide important prognostic information.

Copeptin can be measured in the blood and is elevated in patients with pulmonary embolism when (primary) impairment of cardiovascular function occurs. Three clinical cohort studies [3-5] show that elevated copeptin concentrations (≥24 pmol/L) are associated with an increased risk of complications in the acute phase and may provide additional relevant prognostic information in addition to clinical assessment, imaging and laboratory markers. Therefore, the 2019 ESC guideline states that copeptin may provide additional prognostic information for risk stratification in patients with acute pulmonary embolism.

"The clinical significance of copeptin is its additional prognostic value and ability to identify pulmonary embolism patients with a particularly high risk," said Mareike Lankeit. "However, whether pulmonary embolism patients with elevated copeptin may benefit from a more aggressive therapy needs to be investigated in further studies."

In Europe, the B·R·A·H·M·S Copeptin proAVP KRYPTOR test is indicated to be used in conjunction with additional clinical data as an aid in assessing the differential diagnosis of patients with water balance disorders, e.g. polyuria-polydipsia syndrome or syndrome of inappropriate ADH secretion (SIADH) in an outpatient and hospital setting. The test is further indicated as an aid to be used in conjunction with cardiac troponin and the clinical evaluation in ruling out acute myocardial infarction in patients presenting with chest pain or equivalent symptoms of cardiac origin in a hospital setting.

For more information, please see the following site: www.thermoscientific.com/copeptin.

Product is CE marked but not 510(k)-cleared and not available for sale in the U.S. Availability of product in each country depends on local regulatory marketing authorization status.

About Copeptin
Copeptin, part of the vasopressin prohormone, is a marker of the individual hemodynamic stress response. 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 pre-analytical errors. Copeptin, a 39-amino acid glycopeptide that comprises the C-terminal part of the AVP precursor (CT-proAVP), has been found to be a stable and sensitive surrogate marker for AVP, analogous to C-peptide for insulin. Copeptin measurement has been shown to be useful in various clinical indications, e.g., in endocrinology (differential diagnosis of the polyuria-polydipsia syndrome) and cardiovascular diseases. After

acute myocardial infarction (AMI), circulating copeptin levels rise to peak values rapidly and then decline over the next hours. The pre-pro-vasopressin precursor is synthesized and processed into its three components – AVP, neurophysin II and copeptin – within the hypothalamus; afterwards these products are transported along the neuronal axons in the granules of the posterior hypophysis (pituitary gland), where they are stored and released under appropriate stimulus.
Thermo Scientific B·R·A·H·M·S Copeptin proAVP KRYPTOR is part of a series of biomarker assays which can be used in cardiology and endocrinology.

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