When time is of the essence – Novel blood biomarker allows for a fast diagnosis of Type A aortic dissection

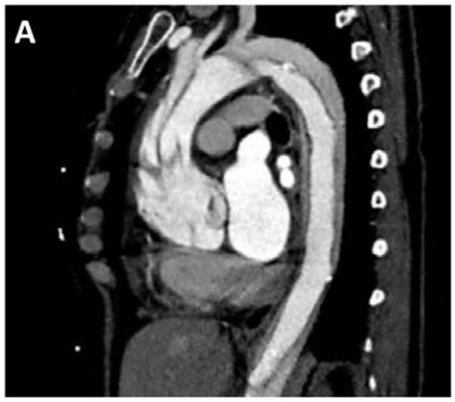
Reference No: X19012

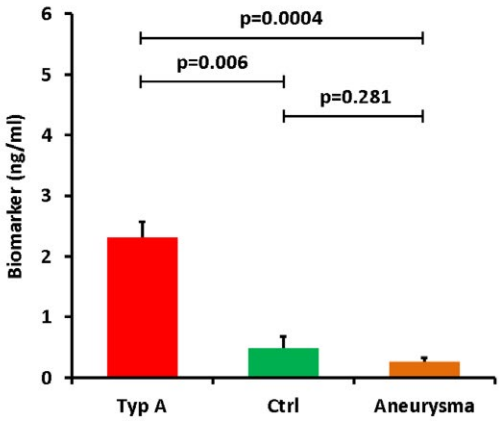
CHALLENGE

A **Type A aortic dissection** describes the acute rupture of the ascending aorta which has a **mortality rate of 20 %** within the first 24hrs. Due to the constant risk of a complete rupture, **immediate action** is required to prevent certain death of the patient. Moreover, without **fast medical treatment** the risk of severe circulatory disturbances in other organs followed by **life-threatening complications** including stroke and cardiac failure increases dramatically. If left untreated, acute dissections have a **mortality rate of 1-5% per hour after onset.** By surgical reconstruction of the aorta with a synthetic tube, leakage can be stopped and entry of blood into the aortic wall is stopped. Therefore, a **fast and reliable diagnosis** is crucial to increase the chance of the **patient's survival.** However, this has proven to be difficult in the past, since the clinical symptoms are similar to that of a heart attack, e.g. acute chest pain. Whereas several established blood biomarkers have already been identified to help diagnose the latter, this is not the case for aortic dissections, particularly for Type A aortic dissections. Here, different imaging techniques such as computer tomography (CT) are performed which are **time-consuming,** often lack in picture quality and are not readily available in every clinic. Since the **precise differential diagnosis** has to occur under extreme time pressure, a specific biomarker could save valuable time and improve **chances of survival.**

INNOVATION

Here, we present a **novel protein biomarker** which could allow for the fast diagnosis of acute Type A aortic dissections. First identified in a **proteomics dataset** from heart tissue, the protein's **aorta-specific localization** was further confirmed in heart tissue biopsies from surgeries. Most importantly, the protein is **significantly upregulated in blood serum** of patients suffering from a Type A aortic dissection. As a biomarker, the protein can provide a valuable and time-saving diagnostic tool in the clinic.





COMMERCIAL OPPORTUNITIES

- Novel protein biomarker for a fast initial diagnosis of aortic dissections
- Standardized ELISA detection allows for easy measurement in patients' blood
- Opportunities for partners also include research cooperation for further development

DEVELOPMENT STATUS

Proof of concept in heart tissue biopsies and patients' blood.

BayPAT

Deutsches Herzzentrum München
des Freistaates Bayern
Klinik an der Technischen Universität München

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Contact:
Dr. M. Charlotte Hemmer
+49 (0) 89 5480177 - 29
chemmer@baypat.de

Bayerische
Patentallianz GmbH
Prinzregentenstr. 52
80538 München
www.baypat.de