

Publication

Activity of the adrenomedullin system to personalise post-discharge diuretic treatment in acute heart failure

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Author(s) Kozhuharov, Nikola; Ng, Leong; Wussler, Desiree; Strebel, Ivo; Sabti, Zaid; Hartmann, Oliver; Eltayeb, Mohamed; Squire, Iain; Nowak, Albina; Rieger, Max; Martin, Jasmin; Michou, Eleni; Stefanelli, Sabrina; Puelacher, Christian; Shrestha, Samyut; Belkin, Maria; Zimmermann, Tobias; Lopez-Ayala, Pedro; Struck, Joachim; Bergmann, Andreas; Mebazaa, Alexandre; Blet, Alice; Gualandro, Danielle Menosi; Breidhardt, Tobias; Mueller, Christian

Author(s) at UniBasel [Kozhuharov, Nikola](#) ; [Wussler, Desiree](#) ; [Strebel, Ivo](#) ; [Sabti, Zaid](#) ; [Michou, Eleni](#) ; [Stefanelli, Sabrina](#) ; [Puelacher, Christian](#) ; [Shrestha, Samyut](#) ; [Belkin, Maria](#) ; [Zimmermann, Tobias](#) ; [Lopez Ayala, Pedro](#) ; [Gualandro, Danielle](#) ; [Breidhardt, Tobias](#) ; [Müller, Christian](#) ;

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Quantifying the activity of the adrenomedullin system might help to monitor and guide treatment in acute heart failure (AHF) patients. The aims were to (1) identify AHF patients with marked benefit or harm from specific treatments at hospital discharge and (2) predict mortality by quantifying the adrenomedullin system activity.; This was a prospective multicentre study. AHF diagnosis and phenotype were centrally adjudicated by two independent cardiologists among patients presenting to the emergency department with acute dyspnoea. Adrenomedullin system activity was quantified using the biologically active component, bioactive adrenomedullin (bio-ADM), and a prohormone fragment, midregional proadrenomedullin (MR-proADM). Bio-ADM and MR-proADM concentrations were measured in a blinded fashion at presentation and at discharge. Interaction with specific treatments at discharge and the utility of these biomarkers on predicting outcomes during 365-day follow-up were assessed.; Among 1886 patients with adjudicated AHF, 514 patients (27.3%) died during 365-day follow-up. After adjusting for age, creatinine, and treatment at discharge, patients with bio-ADM plasma concentrations above the median (> 44.6 pg/mL) derived disproportional benefit if treated with diuretics (interaction p values < 0.001). These findings were confirmed when quantifying adrenomedullin system activity using MR-proADM (n = 764) (interaction p values < 0.001). Patients with bio-ADM plasma concentrations above the median were at increased risk of death (hazard ratio 1.87, 95% CI 1.57-2.24; p < 0.001). For predicting 365-day all-cause mortality, both biomarkers performed well, with MR-proADM presenting an even higher predictive accuracy compared to bio-ADM (p < 0.001).; Quantifying the adrenomedullin's system activity may help to personalise post-discharge diuretic treatment and enable accurate risk-prediction in AHF.

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