Relationship of increased circulating adrenomedullin with cardiac dysfunction, inflammation, oxidative stress and volume overload in hemodialysis patients

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Abstract

Adrenomedullin (AM) is a peptide involved in cardiovascular homeostasis. The aim of our study was to investigate whether circulating AM might be related to cardiac function, volume overload, oxidative stress and inflammation in hemodialysis patients. Plasma adrenomedullin, C-reactive protein (CRP), oxidized LDL (ox-LDL), lipoprotein (a), systolic and diastolic cardiac functions were assessed before hemodialysis in 80 patients as well as in 40 healthy control subjects. Plasma adrenomedullin levels were significantly higher in the hemodialysis group compared to the control group. Plasma adrenomedullin levels were negatively correlated with systolic and diastolic blood pressure, S/D ratio, deceleration time, left ventricular ejection fraction, ox-LDL and lipoprotein (a). However, it was positively correlated with CRP, delta body weight, mitral E/A wave, and inferior vena cava diameter. Higher plasma adrenomedullin levels may provide a possible index of cardiac dysfunction, systemic inflammation, and volume overload conditions in haemodialysis patients with concomitant cardiovascular disease. In addition, the negative correlation between ox-LDL, lipoprotein (a) and adrenomedullin may suggest that endogenous AM is an important protective factor in anti-atherosclerosis and might be useful as a new target for prevention and therapy for the disease.

Keywords: Adrenomedullin, cardiac dysfunction, hemodialysis, inflammation, oxidative stress

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