CIRCULATING SIGNALING PROTEINS IN HEART FAILURE AS MARKERS OF RESPONSE TO CARDIAC RESYNCHRONIZATION THERAPY

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Background: A wide range of both Th1 and Th2 cytokines, different chemokines and signaling proteins are involved in the pathogenesis of the heart failure (HF). Serum levels of many of these mediators positively correlate with HF with reduced ejection fraction (HF-REF). Cardiac resynchronization therapy (CRT) is a guideline-recommended therapy for elective patients with HF-REF which improves the quality of life and mortality and induces reverse left ventricular remodeling.

Aim: We aimed to evaluate the serum levels of several signaling proteins involved in chronic inflammation, cardiac fibrosis, and remodeling in terms of HF and to establish if these proteins or combined panels can be markers of the response to CRT.

Materials and methods: We enrolled 40 consecutive patients with HF-REF treated with CRT as well as a control group of 20 healthy volunteers. We quantified the serum levels of human TNF-α, IL-4, IL-13, FGF-basic, and Periostin using ELISA method before CRT implantation and at six months follow-up. Response to CRT was defined as at least 5% improvement of the initial HF-REF plus one NYHA functional class improvement.

Results: At baseline, patients eligible for CRT had comparable serum levels of TNF-α, IL-4, and IL-13 and elevated serum Periostin and FGF-basic, compared to the control group. We detected a three-fold higher probability for patients with raised Periostin levels to be nonresponders with a trend toward significance. Aiming to establish a combined biomarker panel predicting the response to CRT, we found the following association: the "double-positive" patients for elevated levels of Periostin and FGF-basic have a nine-fold higher probability to be nonresponders.

Conclusions: The combined serum panel of Periostin and FGF-basic in patients with HF-REF could predict the type of response to CRT. Further investigation of this biomarker panel in a large population of patients is needed to confirm this biomarker panel as a reliable marker of non-response to CRT.

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