FGF23 IS A STRONG PREDICTOR OF SURVIVAL IN CONGESTIVE HEART FAILURE

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Authors: Michel F. Rousseau, Damien Gruson, Thibault Lepoutre, Sylvie Ahn, Jean-Marie Ketelslegers, University of Louvain, Brussels, Belgium

Background: Fibroblast growth factor 23 (FGF23), a bone-derived hormone involved in the regulation of phosphate and calcium metabolism, is related to left ventricular systolic dysfunction. This study sought to evaluate the circulating levels of FGF23 in congestive heart failure (CHF) patients and to assess its potential predictive value for survival.

Methods: FGF23 circulating concentrations were measured in 73 fully treated HF patients. Circulating levels of BNP, intact PTH, phosphorus, calcium and creatinine were also determined. The risk adjusted survival was analyzed over a 6-year follow-up period.

Results: Patients had increased FGF23 levels (median, 307.0 RU/mL, interquartile range: 99.1 - 1029.6) in comparison to 68 controls (57.7, 49.1 - 67.9; p<0.0001). During follow-up, 43 patients died (worsening HF n =29; sudden death n = 11; other cardiovascular death n = 3) and 6 patients underwent heart transplant. In a univariate Cox proportional hazard model, survival was related to creatinine, intact PTH, BNP and FGF23 (p=0.0009, p=0.0146, p=0.0049 and p<0.0001; respectively). Including these biomarkers, in multivariate Cox model, FGF23 and creatinine remained predictive for outcome (p=0.0056 and p=0.0329, respectively). Kaplan-Meier curves differed significantly for FGF23 values above and below the median (Log Rank p<0.0001; see figure).

Conclusion: FGF23 is markedly increased in CHF and is strongly associated to cardiovascular death.