

University of Medicine and Pharmacy

Tg-Mures

**Predictive umoral factors for dilatative
cardiomiopathy progression and prognostic**

abstract

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Abstract

The thesis contains a general and a special part. **The general part** contains data about heart failure from dilatative cardiomyopathy, a major cause of high morbidity and mortality. Despite the modern treatment, death rate is close to 20% per year, and admissions for heart failure in U.S. hospitals are over 1 milion. Nowadays, there are more factors known, which individually influence heart failure prognostic : anemia, chronic kidney disease, diabetes mellitus, dislipidemia, electrolytes disturbances, ejection fraction, NYHA class, gender, age, etc.. **The special part** contains personal research beginning with the study group and continuing with the research method, statistical calculation of dates and results from corelation between clinical, umoral and paraclinical parameters to find prognostic factors for heart failure progression.

Introduction. There are more ways of heart failure progression, from a patient to another. Understanding of factors which may influence morbidity or mortality is mandatory for those patients who requires close monitoring and aggressive treatment. Therefore describing negative predictors can help developing new therapeutical ways , individualised therapy and diminished unwanted progression.

Objectives. Evaluation of some clinical and laboratory characteristics, in patients with secondary ischemic or nonischemic dilatative cardiomyopathy and study some prediction and prognostic factors of heart failure . Also we tried to find corelations between umoral and paraclinic imbalance and exercise capacity of patients with heart failure and prove predictive and prognostic value.

Material and methods. To achieve these goals we did a prospective, transversal study, in which we included patients with dilatative cardiomyopathy, confirmed through cardiac echography, with ischemic etiology (post AMI) – 94 patients and idiopathic(nonischemic) – 78 patients, diagnosed and admitted in the Cardiology Clinic of Transplant and Heart Disease Institute in Tg. Mures, between october 2006 - december 2010. For each patient we analised the following values: serum hemoglobin, electrolytes (sodium and potassium), cholesterol and it`s fraction (HDL), tryglicerides, glomerular filtration rate, creatinin, NYHA class, age, gender, ECG, diabetes mellitus, echocardiography (ejection fraction, akinetic area), exercise test Naughton protocol with the recording of walk time untill stopping due to chest pain, dispnea or maligne rhytm disturbances.

Statistical analyses was done using SPSS program, version 19.0, GrAPH PAD DEMO and GRAPH PAD PRISMA. For the univariable data analyses we used T test for independent variables (continuous variables with normal distributioun at Kolmogorov-Smirnov test), Z test for the comparison of two proprortions and corelations based on corelations coephycient Pearson . Multivariable analyses was done through the calculation of some multivariable regressions. We used frequency tables in order to obtain the numeric data and the percentages. Results were shown as average +- SD. Statistically significant diferences were considered for a smaller p value than 0,05.

Results and discussions. In the first analyses we did in the special part, on patients with heart failure characteristics, we proved that besides older age (60,57 years, $p=0,0001$) in ischemic patients group and dominant male gender in a higher proportion (9/1) in nonischemic patients group, statistically significant is also : anterior localisation of AMI (68,1%) opposed to the inferior ones, more than 7 times higher patients with diabetes from ischemic patients group, higher NYHA class of heart failure of ischemic etiology in higher proportion (38,3% opposed to 7,7% for NYHA III class, $p=0,002$, with the same value of EF, without significant statistical differences between groups – EF=39,45% opposed to 37,85%, $p=0,116$). Comparison of umoral factors – total cholesterol, HDL cholesterol, triglycerides, hemoglobin, serum sodium, glomerular filtration rate - proves statistically significant umoral imbalances (all with $p=0,0001$) in the downside of ischemic heart failure. The research of the second analyses done in the special part of global influence of characteristics analysed above on the exercise capacity in patient with heart failure, proved that from 9 factors analysed, only the ejection fraction ($B=0,456$), serum hemoglobin value ($B=0,117$), glomerular filtration rate ($B=0,389$) and low serum sodium level ($B=0,054$), puts statistically significant influence on exercise capacity.

Conclusions. These findings requires renal function exploration because kidney has a key role in heart failure progression. The impairment of renal function, especially glomerular filtration rate who associate hyponatremia, represent a powerful predictor for higher mortality, ten times more important than NYHA class.

We consider that near modern, expensive (and unuseful determinations for each patient) of natriuretic peptides concentrations, troponins or neurohormonal markers dosing (renin, norepinephrin, aldosterone, arginine vasopressin), the evaluation of factors studied in our work is easy, mandatory and very useful in treatment of these patients with heart failure.

The bad prognostic conditions for progression of heart failure from dilatative cardiomyopathy, demonstrated in our study are: ischemic etiology, renal dysfunction, diabetes, anemia, older age, dyslipidemia, low ejection fraction, NYHA class. These factors considered the usual ones in daily practice, represent first line of evaluating criterias for heart failure prognostic.

Key words: heart failure, renal dysfunction, prognostic factors.