Appendix

Exact methods

The study was a post hoc analysis of the data concerning 893 patients included in the Euro Heart registry- heart failure pilot survey in Polish medical centres. In this paper we are presenting results of subgroup analysis of patients without diagnosed atrial fibrillation.

For the purpose of the study the following definitions of the individual components of metabolic syndrome were assumed:

* Dyslipidemia – the use of statins was adopted for the diagnosis of dyslipidemia.
* Obesity - based on the value of body mass index — body mass index > 30 kg/m2.
* Carbohydrate metabolism disorders — diagnosis of diabetes (based on the interview data).
* Hypertension — based on the interview data.

For statistical analysis, it was assumed that a patient with metabolic syndrome was a patient with a simultaneous occurrence of diabetes, hypertension, and obesity.

In the original protocol for the Euro Heart registry - heart failure pilot survey, in case of hospitalized patients, determining their status as “alive” or “dead” was required prior to the closure of the form and during the subsequent follow-up study on the 3rd, 6th, and 12th month. For the purpose of this study, five categories of survival were adopted:

* If the patient died in the course of the hospitalization during which he was included in the registry, it was assumed that death occurred in the first month of the follow-up study — survival time was coded as 1.
* If the patient died until the first medical control, it was assumed that death occurred within the first 3 months of the follow-up study — survival time was coded as 3.
* If the patient died until the second medical control, it was assumed that death occurred within the first 6 months of the follow-up study, but the patient survived at least 3 months after the enrollment — survival time was coded as 6.
* If the patient died until the last medical control, it was assumed that death occurred within 12 months of the follow-up study, but the patient survived at least 6 months after the enrolment — survival time was 12.
* For the remaining patients, the follow-up study was coded as unfinished (for the purpose of statistical analysis).

The study also analysed basic biomedical parameters: age, sex, height, weight, systolic and diastolic blood pressure values (measured at enrolment), heart rate and left ventricular ejection fraction. The coexistence of selected cardiovascular conditions and other chronic diseases (data from medical history and documentation, originally obtained according to the Euro Heart registry- heart failure pilot survey) was also analysed.

Exact statistical analysis

The analysis of the results was performed using the STATISTICA 12 PL software. Taking into account the population size, the assumption of a distribution similar to the normal distribution was adopted for the majority of quantitative variables (age, EF, BMI, SBP, DBP). For these variables, mean values and standard deviations (SD) were given. For discrete variables (NYHA, number of hospitalizations, body mass index category), the mode and percentage share of the mode in the study group were given. For qualitative variables, frequencies were given. The statistical significance of the differences between the quantitative variables was evaluated by the t-student test with the assumption of a distribution similar to the normal distribution. The statistical significance of the differences between the qualitative variables was assessed using the χ2 test. For all tests, the standard significance level p = 0.05 was assumed. The comparative analysis of the survival of patients in individual subgroups was performed by log-rank test, showing Kaplan-Meier survival curves and presenting hazard ratio (HR) value. The impact of individual qualitative factors on the survival of patients was assessed by main effect or one factor ANOVA analysis, factor interactions were evaluated by ANOVA interaction analysis [9].

Study limitations

The presented study here has several limitations. First of all, in the definition of metabolic syndrome, dyslipidemia has not been precisely addressed, and its occurrence is indirectly based on the use of statins. This was due to the lack of data on the concentration of individual cholesterol fractions (including metabolic syndrome components) in the original HF-Pilot Study registry database. Relatively few patients met the definition of metabolic syndrome; however, the number was above 30, which is the generally accepted minimum number allowing for survival analysis. Another limitation is the relatively small number of deaths observed during the 1-year follow-up, also resulting from the original registry database. A minor limitation of the study is simplifying death time of a patient- precisely described in the method section.