**Table 1. Clinical, demographic and laboratory characteristics of the patients**

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| **Parameter** | **All patients (n = 134)** | **МоСА score > 26 (n = 49)** | **МоСА score ≤ 25 (n = 85)** | **P value** |
| Age, years | 63.36 ± 10.63 | 59.30 ± 9.97 | 73.58 ± 6.83 | < 0.001 |
| Men, N (%) | 102 (76.12) | 39 (79.59) | 63 (74.12) | 0.475 |
| Smokers, N (%) | 38 (28.36) | 15 (30.61) | 23 (27.06) | 0.661 |
| CHF duration, months | 42 [25; 52] | 23 [19; 28] | 51 [42; 58] | < 0.001 |
| AH, N (%) | 101 (75.37) | 30 (61.22) | 71 (83.53) | < 0.001 |
| AH duration, months | 116 [85; 164] | 79 [49; 99] | 142 [116; 169] | < 0.001 |
| CHF NYHA II, N (%) | 102 (76.12) | 35 (71.43) | 67 (78.82) | 0.334 |
| CHF NYHA III, N (%) | 32 (23.88) | 11 (22.45) | 21 (24.71) | 0.768 |
| AF, N (%) | 25 (18.66) | 8 (16.33) | 17 (20.0) | 0.600 |
| History of MI, N (%) | 45 (33.58) | 12 (24.49) | 33 (38.92) | 0.091 |
| Diabetes, N (%) | 39 (29.1) | 9 (16.33) | 30 (35.29) | 0.038 |
| Diabetes duration, months | 30 [24; 48] | 25 [20; 29] | 36 [27; 52] | < 0.001 |
| BMI (kg/m2) | 22.87 ± 4.06 | 22.87 ± 4.06 | 24.74 ± 3.85 | < 0.001 |
| SBP, mmHg | 161.12 ± 27.24 | 141.46 ± 28.14 | 179.61 ± 37.15 | < 0.001 |
| DBP, mmHg | 79.21 ± 16.52 | 72.36 ± 8.15 | 89.75 ± 11.21 | < 0.001 |
| Hyperuricemia, N (%) | 24 (17.91) | 8 (16.33) | 16 (18.82) | 0.717 |
| BUN, mmol/L | 7.2 [6.5; 7.9] | 6.2 [5.9; 7.8] | 6.9 [5.1; 8.5] | 0.105 |
| Creatinine, mcmol/L | 104 [90; 122.0] | 92 [77; 115] | 123 [87; 147] | 0.015 |
| Renal impairment\*, N (%) | 30 (22.39) | 7 (14.29) | 24 (28.24) | 0.066 |
| FPG, mmol/L | 6.71 [4.9; 7.6] | 5.80 [4.1; 7.2] | 6.92 [4.9; 8.1] | 0.247 |
| Triglycerides, mmol/L | 3.5 [2.7; 5.4] | 2.2 [2.0; 3.1] | 5.2 [3.5; 6.1] | < 0.001 |
| TC, mmol/L | 5.4 [5.1; 6.7] | 5.2 [4.8; 6.1] | 5.5 [5.2; 7.2] | < 0.001 |
| HDL cholesterol, mmol/L | 1.1 [0.95; 1.3] | 1.1 [0.9; 1.3] | 1.2 [0.9; 1.3] | 0.597 |
| LDL cholesterol, mmol/L | 5.5 [3.1; 7.4] | 3.1 [2.2; 3.5] | 6.0 [4.9; 8.2] | 0.004 |
| TyG | 7.75 [6.5; 9.1] | 6.5 [5.7; 7.4] | 8.4 [7.1; 9.4] | < 0.001 |
| SMWT, m | 380 [300; 450] | 500 [439; 510] | 300 [300; 390] | < 0.001 |
| CAVI | 8.4 [6.4; 9.3] | 5.7 [5.3; 6.4] | 8.9 [8.4; 9.7] | < 0.001 |
| LV EF, % | 48 [45; 50] | 49 [47; 51] | 47 [43; 50] | 0.371 |
| LAVI, mL/m2 | 44 [37; 49] | 39 [31; 46] | 45 [39; 49] | 0.078 |
| LVMI, g/m2 | 141 [122; 162] | 137 [114; 152] | 146 [139; 175] | 0.121 |
| NTproBNP, ng/dL | 292 [149; 610] | 273 [142; 564] | 298 [151; 692] | 0.544 |
| МоСА, score | 24.09 ± 3.08 | 27.37 ± 1.30 | 20.56 ± 2.05 | < 0.001 |

AF, atrial fibrillation; AH, arterial hypertension; BMI, body mass index; CAVI, cardio-ankle vascular index; CHF, chronic heart failure; DBP, diastolic blood pressure; FPG, fasting plasma glucose; HDL, high density lipoprotein; LAVI, left atrial volume index; LDL, low density lipoprotein; LV EF, left ventricular ejection fraction; LVMI, left ventricular mass index; MI, myocardial infarction; MoСА, Montreal Cognitive Assessment scale; NTproBNP, brain natriuretic peptide; NYHA, New York Heart Association grading of heart failure; SBP, systolic blood pressure; SMWT, six minute walking test; TC, total cholesterol; TyG, triglyceride glucose index

The values are given as means and standard deviations (М ± SD) or median with 1st and 3rd quartiles (Ме [25%; 75%])

Р, significance of the differences between the patients with cognitive impairment (МоСА ≤ 25) and without it (МоСА > 26)

\* Glomerular filtration rate ≤ 60 mL/min/1.73 m2

**Table 2. Spearman's correlation and partial correlation between the study parameters and MoСА scores**

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| --- | --- |
| **Parameter** | **MoСА score** |
| **Spearman’s correlation** | **P value** | **Partial correlation** | **P value** |
| Age | -0.720 | 0.041 | -0.064 | 0.593 |
| TyG | -0.338 | < 0.001 | -0.357 | 0.029 |
| CAVI | -0.930 | < 0.001 | -0.802 | < 0.001 |
| SMWT | 0.826 | < 0.001 | 0.211 | 0.037 |
| Duration of CHF | -0.807 | 0.036 | -0.052 | 0.665 |
| Duration of AH | -0.760 | < 0.001 | -0.282 | 0.016 |
| Duration of diabetes | -0.531 | 0.028 | -0.096 | 0.419 |
| TG | -0.667 | < 0.001 | -0.246 | 0.036 |
| TC | -0.239 | 0.053 | -0.042 | 0.727 |
| HDL cholesterol | -0.174 | 0.054 | 0.010 | 0.935 |
| LDL cholesterol | -0.654 | 0.032 | -0.141 | 0.233 |
| LV EF | 0.267 | 0.044 | 0.070 | 0.556 |

AF, atrial fibrillation; AH, arterial hypertension; CAVI, cardio-ankle vascular index; CHF, chronic heart failure; HDL, high density lipoprotein; LDL, low density lipoprotein; LV EF, left ventricular ejection fraction; MoСА, Montreal Cognitive Assessment scale; p, significance level; r, correlation coefficient; SMWT, six minute walking test; TC, total cholesterol; TG, triglycerides; TyG, triglyceride glucose index

**Table 3. Association between significant parameters and MoCA score corrected by ANOVA**

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| --- | --- | --- | --- | --- |
| **Parameter** | **R2** | **Adj. R2** | **F** | **P value** |
| CAVI | 0.892 | 0.881 | 76.46 | < 0.001 |
| TyG | 0.425 | 0.363 | 6.82 | < 0.001 |
| SMWT | 0.726 | 0.696 | 24.43 | < 0.001 |

Adj. R2, corrected quadrate of multiple correlation coefficient; CAVI, cardio-ankle vascular index; F, degrees of freedom statistics; p, significance level corresponding to F; R2, quadrate of multiple correlation coefficient; SMWT, six minute walking test; TyG, triglyceride glucose index