**Table 1. Main characteristics of the study subjects**

|  |  |
| --- | --- |
| **Characteristics** | **Values** |
| Age, years | 63.47 ± 16.21 |
| Women, n (%) | 151 (58.98) |
| Median of the follow-up, months | 16 [14; 21] |
| Patients with incident AF, n (%) | 12 (4.69) |
| Median time to AF, months of the follow-up | 7 [5; 11] |
| Dead during the study period, n (%) | 30 (11.72) |
| Median time to death, months | 6 [3; 11] |

AF, atrial fibrillation

The values are given as mean ± SD or median and interquartile range

**Table 2. Causes of death of the study participants**

|  |  |  |
| --- | --- | --- |
| **Cause of death** | **Dead patients, N (n = 30)** | **Proportion of all deaths, %** |
| Chronic heart failure | 16 | 53.33 |
| Chronic respiratory failure | 4 | 13.33 |
| Malignancies | 2 | 6.67 |
| Cerebrovascular disease | 2 | 6.67 |
| Ischemic (cardioembolic) stroke | 2 | 6.67 |
| Diabetes mellitus | 1 | 3.33 |
| Gastrointestinal bleeding | 1 | 3.33 |
| Aortal dissection | 1 | 3.33 |
| Hemorrhagic stroke | 1 | 3.33 |
| Total cardiovascular deaths | 22 | 73.33 |

**Table 3. Quantitative characteristics of the study groups formed based on the probability of the incident atrial fibrillation according to the neural network output**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Characteristics / TTE parameters, M ± SD** | **NN output values ≤ 0.33 (group 1, n = 48)** | **NN output values 0.34 to 0.66 (group 2, n = 185)** | **NN output values ≥ 0.67 (group 3, n = 23)** | **p value** |
| Age, years | 67.71 ± 13.57 | 63.08 ± 15.88 | 57.78 ± 22.31 | р1–2 = 0.045р2–3 = 0.474р1–3 = 0.089 |
| NN output value | 0.23 ± 0.07 | 0.53 ± 0.08 | 0.69 ± 0.02 | р1–2 < 0.001р2–3 < 0.001р1–3 < 0.001 |
| Ascending aorta diameter, cm | 3.34 ± 0.44 | 3.25 ± 0.29 | 3.04 ± 0.51 | р1–2 = 0.234р2–3 = 0.022р1–3 = 0.017 |
| Left atrial diameter, cm | 4.28 ± 0.48 | 3.73 ± 0.35 | 3.22 ± 0.41 | р1–2 < 0.001р2–3 < 0.001р1–3 < 0.001 |
| Transverse size of the right atrium, cm | 3.87 ± 0.56 | 3.52 ± 0.34 | 3.27 ± 0.23 | р1–2 < 0.001р2–3 < 0.001р1–3 < 0.001 |
| Diameter of the pulmonary artery trunk, cm | 2.28 ± 0.25 | 2.19 ± 0.21 | 1.96 ± 0.28 | р1–2 = 0.045р2–3 < 0.001р1–3 < 0.001 |
| Diameter of the inferior vena cava, cm | 2.02 ± 0.35 | 1.64 ± 0.32 | 1.53 ± 0.39 | р1–2 < 0.001р2–3 = 0.245р1–3 < 0.001 |
| Left ventricular end-diastolic diameter, cm | 5.35 ± 1.12 | 4.77 ± 0.44 | 4.70 ± 0.36 | р1–2 < 0.001р2–3 = 0.855р1–3 < 0.001 |
| Right ventricular diameter, cm | 2.95 ± 0.59 | 2.61 ± 0.27 | 2.64 ± 0.30 | р1–2 = 0.001р2–3 = 0.371р1–3 = 0.038 |
| Left ventricular ejection fraction, % | 46.8 ± 13.66 | 62.56 ± 6.43 | 65.61 ± 3.94 | р1–2 < 0.001р2–3 = 0.005р1–3 < 0.001 |
| Interventricular septum thickness, cm | 1.21 ± 0.22 | 1.15 ± 0.20 | 1.16 ± 0.22 | р1–2 = 0.110р2–3 = 0.587р1–3 = 0.592 |
| Thickness of the left ventricular posterior wall, cm | 1.14 ± 0.17 | 1.09 ± 0.14 | 1.07 ± 0.19 | р1–2 = 0.079р2–3 = 0.705р1–3 = 0.196 |
| Aortal regurgitation, grade | 0.21 ± 0.47 | 0.01 ± 0.36 | 0.17 ± 0.51 | р1–2 = 0.006р2–3 = 0.305р1–3 = 0.487 |
| Mitral regurgitation, grade | 2.21 ± 0.49 | 1.40 ± 0.35 | 1.06 ± 0.17 | р1–2 < 0.001р2–3 < 0.001р1–3 < 0.001 |
| Tricuspid regurgitation, grade | 2.19 ± 0.45 | 1.19 ± 0.39 | 1.0 ± 0 | р1–2 < 0.001р2–3 < 0.001р1–3 < 0.001 |

NN, neural network; TTE, trans-thoracic echocardiography

The values are given as arithmetic means and mean square deviation

**Table 4. Categorical variables in the study groups formed based on the probability of the incident atrial fibrillation according to the neural network output**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Characteristics, n (%)** | **NN output values ≤ 0.33 (group 1, n = 48)** | **NN output values 0.34 to 0.66 (group 2, n = 185)** | **NN output values ≥ 0.67 (group 3, n = 23)** | **p value** |
| Women | 25 (52.08) | 112 (60.54) | 14 (60.87) | р1–2 = 0.325р2–3 = 1.0р1–3 = 0.612 |
| Incident AF during the follow-up | 8 (16.67) | 4 (2.16) | 0 | р1–2 < 0.001р2–3 = 1.0р1–3 = 0.047 |
| Dead during the follow-up | 17 (35.42) | 13 (7.01) | 0 | р1–2 < 0.001р2–3 = 1.0р1–3 < 0.001 |
| Cardiovascular deaths during the follow-up | 15 (31.25) | 7 (3.78) | 0 | р1–2 < 0.001р2–3 = 1.0р1–3 = 0.002 |
| Deaths from CHF during the follow-up | 11 (22.92) | 5 (2.70) | 0 | р1–2 < 0.001р2–3 = 1.0р1–3 = 0.013 |
| History of myocardial infarction | 16 (33.33) | 20 (10.81) | 2 (8.07) | р1–2 < 0.001р2–3 = 1.0р1–3 = 0.039 |
| Diabetes mellitus | 19 (39.58) | 28 (15.14) | 3 (13.04) | р1–2 < 0.001р2–3 = 0.212р1–3 = 0.002 |
| History of stroke | 6 (12.5) | 5 (2.70) | 1 (4.35) | р1–2 = 0.011р2–3 = 1.0р1–3 = 0.167 |
| Dilatational cardiomyopathy | 6 (12.5) | 1 (0.54) | 0 | р1–2 < 0.001р2–3 = 1.0р1–3 = 0.167 |
| COPD | 2 (4.17) | 1 (0.54) | 3 (13.04) | р1–2 = 0.108р2–3 = 0.004р1–3 = 0.320 |
| Aortic valve stenosis | 2 (4.17) | 1 (0.54) | 0 | р1–2 = 0.108р2–3 = 1.0р1–3 = 1.0 |

AF, atrial fibrillation; CHF, chronic heart failure; COPD, chronic obstructive pulmonary disease; NN, neural network

The values are given as absolute patient numbers and their proportion (%) in the group