**Table 1. Characteristics of the study patients**

|  |  |  |
| --- | --- | --- |
| **Parameters** | **NET group** | **Control group** |
| Patient number, n | 94 | 78 |
| Age, Me [Q25; Q75], years | 61 [22; 83]\* | 55 [20; 84] |
| Men, n (%) | 32 (34.1)\*\* | 23 (29.5) |
| Women, n (%) | 62 (65.9)\*\* | 55 (70.5) |
| NET location, n (%): |  |  |
| stomach | 11 (11.7) | – |
| pancreas | 15 (16.0) | – |
| lungs | 16 (17.0) | – |
| small intestine | 26 (27.7) | – |
| colon | 5 (5.3) | – |
| Primary tumor not found, n (%) | 21 (22.3) | – |
| Liver metastases, n (%) | 67 (71.3) | – |
| Carcinoid syndrome, n (%) | 58 (61.7) | – |
| Carcinoid heart disease, n (%) | 36 (38.4) | – |
| Normal body weight (BMI 18 to 24.9), n (%) | 46 (48.9) | 32 (41.0) |
| Overweight or obesity (BMI ≥ 25), n (%) | 48 (51.1) | 46 (59.0) |

BMI, body mass index (kg/m2); NET, neuroendocrine tumor

Difference from the control group: \* p = 0.1 (Mann-Whitney test); \*\* p = 0.62 (two-sided Fischer’s test)

**Table 2. The absence of any differences in body mass index depending on the clinical characteristics of a neuroendocrine tumor**

|  |  |  |
| --- | --- | --- |
| **Clinical characteristics of NETs** | **BMI, Me [Q25; Q75]** | **P value** |
| Distant metastases: |  | 0.96 |
| identified | 25.4 [21.5; 30.3] |  |
| not identified | 24.4 [21.5; 29.9] |  |
| Functional activity: |  | 0.37 |
| carcinoid syndrome present | 24.3 [21.5; 29.3] |  |
| no carcinoid syndrome | 26.1 [22.2; 30.6] |  |
| CHD: |  | 0.35 |
| yes | 24.2 [21.3; 29.3] |  |
| no | 25.5 [22.1; 30.3] |  |
| Differentiation grade: |  | 0.67 |
| Grade 1 | 24.9 [21.5; 30.6] |  |
| Grade 2 | 26.6 [22.7; 31.6] |  |
| Grade 3 | 26.5 [23.99; 27.1] |  |

BMI, body mass index (kg/m2); CHD, carcinoid heart disease; NET, neuroendocrine tumor

**Table 3. The comparison of the concentrations of biochemical neuroendocrine tumor markers**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Study groups** | **n** | **CgА, ng/mL** |  | **Serotonin, ng/mL** |  | **NT-proBNP, pg/mL** |
| **Me [Q25; Q75]** | **p** | **Me [Q25; Q75]** | **p** | **Me [Q25; Q75]** | **p** |
| Total study sample with NETs | 94 | 274 [83.4; 1778] | 0.0000001 | 463 [137; 1200] | 0.0004 | 135 [67.8; 284] | 0.0000001 |
| Control | 78 | 57.8 [44.8; 76.0] | 158 [122; 197] | 62.1 [32.8; 102] |
| NET patients with BMI of 18 to 24.9 | 46 | 769 [171; 4479] | 0.008 | 704 [195; 1281] | 0.005 | 197 [89.6; 562] | 0.012 |
| NET patients with BMI ≥ 25 | 48 | 150 [66.8; 150] | 188 [105; 994] | 117 [55.4; 206] |
| NET patients with mts, BMI 18 to 24.9 | 32 | 1249 [470; 5520] | 0.0006 | 1170 [551; 1707] | 0.0021 | 336 [177; 620] | 0.0001 |
| NET patients with mts, BMI ≥ 25 | 35 | 175 [81.3; 1008] | 304 [105; 1085] | 119 [59; 231] |
| NET patients with CS, BMI 18 to 24.9 | 31 | 1019 [424; 5106] | 0.022 | 1185 [551; 1707] | 0.06 | 287 [161; 661] | 0.004 |
| NET patients with CS, BMI ≥ 25 | 27 | 176 [103; 1310] | 796 [131; 1124] | 118 [52; 231] |
| NET patients with CHD, BMI 18 to 24.9 | 19 | 2959[768; 22261] | 0.004 | 1138[613; 1438] | 0.049 | 612 [250; 956] | 0.025 |
| NET patients with CHD, BMI ≥ 25 | 17 | 116 [74.6; 1544] | 438 [64.1; 1042] | 141 [52.1; 979] |
| Control, BMI 18 to 24.9 | 32 | 61.9 [46.6; 80.9] | 0.09 | 190 [151; 244] | 0.0001 | 74.1 [43.8; 100] | 0.354 |
| Control, BMI ≥ 25 | 46 | 55.5 [29.2; 66.8] | 139 [101; 174] | 53.7 [27.6; 125] |

BMI, body mass index (kg/m2); CHD, carcinoid heart disease; CgА, chromogranin А; CS, carcinoid syndrome; Mts, metastases; NET, neuroendocrine tumor; NT-proBNP, N-terminal brain natriuretic pro-peptide