**Table 1. Patient characteristics**

|  |  |  |
| --- | --- | --- |
| **Parameter** | **Study group** | **P value** |
| **prednisolone 30 mg (n = 22)** | **prednisolone 60 mg (n = 22)** |
| Gender, n (%): |  |  | 1.000 |
| male | 15 (68.2) | 14 (63.6) |
| female | 7 (31.8) | 8 (36.4) |
| Age, years | 54.5 [51.0; 62.0] | 56.0 [48.0; 60.0] | 0.559 |
| HA, n (%): |  |  |  |
| atrial | 12 (54.5) | 16 (72.7) | 0.424 |
| ventricular | 4 (18.2) | 3 (13.6) |
| combined | 6 (27.3) | 3 (13.6) |
| Angina II, III NYHA class, n (%) | 5 (22.7) | 5 (22.7) | 1.000 |
| CHF II, III NYHA class, n (%) | 11 (50.0) | 6 (27.3) | 0.215 |
| LV EF, % | 58.0 [43.0; 65.0] | 62.0 [56.0; 64.0] | 0.396 |
| CHFrLVEF, n (%) | 5 (22.7) | 2 (9.1) | 0.412 |
| Arterial hypertension, n (%) | 16 (72.7) | 15 (68.2) | 1.000 |
| Myocardial infarction, n (%) | 3 (13.6) | 1 (4.5) | 0.607 |
| Stroke, n (%) | 2 (9.1) | 1 (4.5) | 1.000 |
| Myocarditis, n (%) | 3 (13.6) | 4 (18.2) | 1.000 |
| Valvular heart disease, n (%) | 2 (9.1) | 1 (4.5) | 1.000 |
| BMI, kg/m2 | 26.0 [22.8; 29.2] | 25.4 [24.4; 29.3] | 0.963 |
| T2DM, n (%) | 2 (9.1) | 1 (4.5) | 1.000 |
| GFRCKD-EPI, mL/min/1,73 m2 | 77.8 [71.0; 92.8] | 75.3 [67.9; 85.6] | 0.313 |
| 10 year absolute risk of fractures: |  |  |  |
| major | 5,8 [4.5; 8.7] | 6.1 [5.2; 8.0] | 0.698 |
| proximal femoral | 0.6 [0.3; 2.3] | 0.9 [0.5; 1.4] | 0.989 |
| Densitometry, n (%)\*: | 8 (36.4) | 13 (59.1) | 0.227 |
| lumbar T, SD | -1.8 [-2.0; -1.1] | -1.2 [-1.9; -1.0] | 0.645 |
| proximal femoral T, SD | -1.9 [-2.2; -1.3] | -1.1 [-1.6; -1.0] | 0.104 |
| Thyroid structure abnormalities, n (%): |  |  |  |
| no | 16 (72.7) | 19 (86.4) |  |
| nodal goiter | 3 (13.6) | 2 (9.1) | 0.348 |
| multinodal goiter | 2 (9.1) | 1 (4.5) |
| diffuse goiter | 1 (4.5) |  |
| Duration of treatment with amiodarone, weeks | 104.0 [65.0; 121.0] | 109.0 [78.0; 156.0] | 0.185 |
| Amiodarone daily dose, mg | 200 [200; 200] | 200 [200; 200] | 0.463 |
| Amiodarone cumulative dose, g | 146.3 [91.0; 182.0] | 149.0 [109.2; 242.2] | 0.227 |
| Amiodarone withdrawal (before/during AmIT2), n (%) | 5 (22.7) / 15 (68.2) | 8 (36.4) / 14 (63.6) | 0.256 |
| Time from the beginning of amiodarone treatment to AmIT2 manifestation, weeks | 107.0 [78.0; 130.0] | 121.0 [89.0; 155.0] | 0.133 |
| Time from amiodarone withdrawal to AmIT2 manifestation, weeks | 29.5 [20.5; 34.0](n = 5) | 40.0 [21.5; 58.0](n = 8) | 0.570 |
| TSH, mcМЕ/mL | 0.01 [0.01; 0.02] | 0.01 [0.01; 0.09] | 0.358 |
| fТ4manifest, pmol/L | 37.5 [30.5; 56.6] | 39.7 [32.0; 60.9] | 0.963 |
| fТ3manifest, pmol/L | 8.5 [6.9; 14.2] | 10.7 [8.5; 13.0] | 0.630 |
| fТ4/fТ3manifest | 4.3 [3.2; 4.7] | 3.85 [3.5; 4.6] | 0.860 |
| fТ4max, pmol/L | 55.9 [42.9; 71.7] | 52.1 [44.8; 70.7] | 0.842 |
| fТ3max, pmol/L | 10.6 [8.4; 19.6] | 12.3 [10.8; 17.3] | 0.330 |
| fТ4/fТ3max | 4.8 [3.6; 5.2] | 4.1 [3.4; 4.9] | 0.405 |
| fТ4GC, pmol/L | 44.3 [33.6; 63.6] | 47.0 [38.9; 60.8] | 0.573 |
| fТ3GC, pmol/L | 8.7 [8.0; 14.9] | 11.3 [10.1; 15.3] | 0.057 |
| fТ4GC2wk, pmol/L | 35.1 [26.6; 44.9] | 30.8 [24.9; 41.5] | 0.285 |
| fТ3GS2wk, pmol/L | 6.8 [5.4; 9.8] | 5.35 [4.3; 7.1] | 0.034 |
| fТ4GS1mo, pmol/L | 23.2 [19.4; 36.2] | 23.2 [16.6; 35.3] | 0.385 |
| fТ3GS1mo, pmol/L | 5.2 [4.3; 7.1] | 4.95 [4.2; 6.8] | 0.888 |
| fТ4↓GS, pmol/L | 21.6 [21.0; 23.0] | 22.3 [19.4; 23.0] | 0.934 |
| fТ3↓GS, pmol/L | 4.6 [4.0; 5.3] | 4.5 [3.8; 5.2] | 0.690 |
| Anti-TPO, MU/mL | 16.5 [14.0; 28.0] | 16.0 [14.0; 24.0] | 0.532 |
| Anti-rTSH, MU/mL | 0.6 [0.4; 0.9] | 0.6 [0.4; 0.8] | 0.802 |
| Thyroid volume, mL | 21.0 [16.7; 24.7] | 18.5 [14.7; 21.8] | 0.240 |
| UI99mTcO4, % | 0.1 [0.1; 0.5] | 0.2 [0.1; 0.5] | 0.842 |
| GSclinicAmIT2, days | 45.0 [27.0; 61.0] | 42.5 [34.0; 65.0] | 0.630 |
| GSlabAmIT2, days | 14.0 [3.5; 25.0] | 14.0 [7.0; 25.0] | 0.680 |
| Time from the start of GS to euthyroidism, days | 27.0 [9.0; 30.0] | 31.5 [21.0; 76.0] | 0.316 |
| AmIT2 severity, n (%): |  |  |  |
| mild | 3 (13.6) | 3 (13.6) | 1.000 |
| moderate | 16 (72.7) | 15 (68.2) |
| severe | 3 (13.6) | 4 (18.1) |
| AmIT2clinic, days | 89.0 [78.0; 123.0] | 90.5 [54.0; 120.0] | 0.405 |
| AmIT2lab, days | 70.0 [47.0; 102.0] | 58.0 [40.5; 90.0] | 0.411 |
| Clinic-lab, days | 17.0 [14.0; 30.0] | 20.0 [10.0; 45.0] | 0.813 |

NYHA, New York Heart Association; AmIT2, type 2 amiodarone-induced thyrotoxicosis; AmIT2clinic, duration of thyrotoxicosis from the manifestation of clinical symptoms to normalization of free thyroxin and free triiodothyronine levels; AmIT2lab, duration of thyrotoxicosis from its laboratory confirmation to normalization of free thyroid hormone levels; anti-rTSH, antibody to thyroid stimulating hormone receptor; anti-TPO, antibodies to thyroid peroxidase; GS, glucocorticoids; GSclinicAmIT2, time from the manifestation of clinical symptoms of thyrotoxicosis to administration of glucocorticoids; GSlabAmIT2, time from laboratory confirmation of thyrotoxicosis to administration of glucocorticoids; UI99mTcO4 , uptake index of technecium 99м pertechnetate; BMI, body mass index; Clinic-lab, the interval between the manifestation of clinical symptoms and laboratory confirmation of thyrotoxicosis; HA, heart arrhythmia; fТ3GS, free triiodothyronine levels under glucocorticoid treatment; fТ3GS2wk, free triiodothyronine level at 2 weeks of treatment; fТ3GS1mo, free triiodothyronine level at 1 month of treatment; fТ3↓GS, free triiodothyronine level during reduction of the glucocorticoid dose; fТ3max, maximal free triiodothyronine value; fТ3manifest, free triiodothyronine level at laboratory confirmation of thyrotoxicosis; fТ4GS, free thyroxin level under glucocorticoid therapy; fТ4GS2wk, free thyroxin level at 2 weeks of treatment; fТ4GS1mo, free thyroxin level at 1 month of treatment; fТ4↓GS, free thyroxin level during reduction of the glucocorticoid dose; fТ4max, maximal free thyroxin value; fТ4manifest, free thyroxin level at laboratory confirmation of thyrotoxicosis; fТ4/fТ3max, the ratio of maximal free thyroxin to free triiodothyronine levels; fТ4/fТ3manifest, the ratio of free thyroxin to free triiodothyronine values at the time of laboratory confirmation of thyrotoxicosis; T2DM, type 2 diabetes mellitus; GFRCKD-EPI, glomerular filtration rate calculated with CKD-EPI (Chronic Kidney Disease Epidemiology Collaboration) equation; SD, standard deviation; TSH, thyroid-stimulating hormone; LV EF, left ventricular ejection fraction; CHF, chronic heart failure; CHFrLVEF, chronic heart failure with reduced left ventricular ejection fraction; euthyroidism from the beginning of GS treatment – time from the beginning of treatment with glucocorticoids to euthyroidism

The values are given as absolute patient numbers (n) and their proportions from total number of patients in the group (%); median, and upper and lower quartiles (Me [Q1; Q3])

\* Number of patients with densitometry performed

**Table 2. Clinical particulars of the course of type 2 amiodarone-induced thyrotoxicosis**

|  |  |  |
| --- | --- | --- |
| **Parameter** | **Study group** | **P value** |
| **prednisolone 30 mg (n = 22)** | **prednisolone 60 mg (n = 22)** |
| RDW, n (%) | 4 (18.2) | 6 (27.3) | 0.721 |
| RDW from the clinical manifestation of AmIT2, days | 96.0 [84.5; 110.0] | 81.0 [48.0; 128.0] | 0.762 |
| RDW from GS administration, days | 53.5 [46.5; 69.5] | 33.0 [21.0; 45.0] | 0.038 |
| fТ4maxRDW, pmol/L | 40.9 [36.8; 48.9] | 48.3 [46.6; 77.9] | 0.229 |
| fТ3maxRDW, pmol/L | 8.3 [7.2; 9.2] | 9.2 [7.1; 13.8] | 0.730 |
| Relapse, n (%): |  |  | 0.464 |
| during GS dose reduction | 1 (4.5) | 4 (18.2) |
| after GS withdrawal | 2 (9.0) | 1 (4.5) |
| Time from GS dose reduction, days | 27 | 61.0 [45.0; 78.5] | 0.400 |
| GS dose at relapse, mg | 10 | 5.0 [5.0; 10.0] | 1.000 |
| Time from GS withdrawal, days | 42.5 [21.0; 64.0] | 75 | 0.667 |
| fТ4maxRelapse, pmol/L | 32.3 [24.7; 36.2] | 47.5 [29.6; 50.6] | 0.262 |
| fТ3maxRelapse, pmol/L | 5.4 [5.0; 6.2] | 6.8 [5.9; 13.5] | 0.250 |
| Relapse duration, days | 39.0 [27.0; 49.5] | 14.0 [14.0; 35.0] | 0.250 |

AmIT2, type 2 amiodarone-induced thyrotoxicosis; GS, glucocorticoids; RDW, recurrent destruction wave; fТ3maxRDW, maximal value of free triiodothyronine at recurrent destruction wave; fТ3maxRelapse, maximal value of free triiodothyronine at relapse of thyrotoxicosis; fТ4maxRDW, maximal value of free thyroxin at recurrent destruction wave; fТ4maxRelapse, maximal value of free thyroxin at relapse of thyrotoxicosis

The values are given as absolute patient numbers (n) and their proportions from total number of patients in the group (%); median, and upper and lower quartiles (Me [Q1; Q3])

**Table 3. Glucocorticoid side effects**

|  |  |  |
| --- | --- | --- |
| **Parameter** | **Study groups** | **P value** |
| **prednisolone 30 mg (n = 22)** | **prednisolone 60 mg (n = 22)** |
| Patient number, n (%) | 14 (63.6) | 16 (72.7) | 0.747 |
| Hyperglycemia, n (%): |  |  |  |
| impaired glucose tolerance | 3 (13.6) | 6 (27.3) | 0.457 |
| diabetes mellitus | 2 (9.1) | 7 (31.8) | 0.132 |
| Proximal myopathy, n (%) | 9 (40.9) | 14 (63.6) | 0.227 |
| Fracture, n (%) | 1 (4.5) | 1 (4.5) | 1.000 |
| Infection, n (%) | – | 4 (18.52) | 0.108 |
| Proneness to hematoma formation, n (%) | 3 (13.6) | 4 (18.2) | 1.000 |
| Acne, n (%) | 1 (4.5) | 1 (4.5) | 1.000 |
| Changes in appearance, n (%) | 2 (9.1) | 6 (27.3) | 0.240 |
| Combination of side effects, n (%) | 5 (22.7) | 14 (63.6) | 0.014 |

The values are given as absolute patient numbers (n) and their proportions from total number of patients in the group (%)