**Online resource 1:** Demographic information of 848 patients

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| --- | --- | --- | --- |
| Variables | HT | Non-HT | P value |
| **Age** | 48.64±11.2 | 48.11±12.01 | 0.521 |
| **Gender** |  |  | 0.000 |
| Female | 286 (33.7%) | 362 (42.7%) |  |
| Male | 40 (4.7%) | 160 (18.9%) |  |
| **Lesion location** |  |  | 0.028 |
| Unilateral | 229 (27.0%) | 448 (52.8) |  |
| Bilateral | 97 (11.4%) | 74 (9.0%) |  |
| **TSH** | 2.49±1.11 | 1.69±1.12 | 0.03 |
| **With PTC** | 270 (31.8%) | 410 (48.3%) | 0.001 |

**Online resource 2:** Pre-operation laboratory data and their association with different patient groups

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Groups | No. | WBC | P | Neutrophil | P | | Lymphocyte | p | monocytes | P | Platelet | P | NLR | P | PLR | P |
|  |  |  | 0.398 |  | | 0.148 |  | 0.59 |  | 0.207 |  | 0.925 |  | 0.124 |  | 0.8 |
| Healthy control | 24 | 6.04 (3.20–8.00) |  | 3.73 (2.10–5.50) | |  | 1.86 (1.00–2.70) |  | 0.34 (0.20–0.80) |  | 261 (198–338) |  | 2.17 (0.89–4.58) |  | 147.4 (98.83–226.0) | |
| HT patients | 49 | 5.73 (2.30–9.20) | | 3.33 (1.10–5.80) | |  | 1.95 (1.00–5.50) |  | 0.30 (0.00–0.60) | | 262 (156–391) |  | 1.89 (0.47–4.67) |  | 144.34 (0.00–310.0) | |
| **PTC patients** | |  | 0.184 |  | | 0.456 |  | 0.29 |  | 0.007 |  | 0.321 |  | 0.358 |  | 0.606 |
| With HT | 231 | 6.09 (2.20–12.90) | | 3.69 (1.20–10.50) | |  | 1.95 (0.80–4.30) |  | 0.33 (0.10–0.60) |  | 262.55 (142–495) |  | 2.01 (0.65–6.18) |  | 143.19 (0.00–277.00) | |
| Without HT | 275 | 5.91 (3.10–19.60) | | 3.61 (1.40–8.50) | |  | 1.89 (0.70–5.00) |  | 0.30 (0.00–0.70) |  | 257.11 (90.0–504) | | 2.09 (0.72–7.56) |  | 145.50 (0.00–368.57) | |
|  |  |  | 0.164 |  | | 0.035 |  | 0.974 |  | 0.986 |  | 0.212 |  | 0.277 |  | 0.914 |
| HT patients | 49 | 5.73 (2.30–9.20) | | 3.34 (1.10–5.80) | |  | 1.9 5 (1.10–5.50) |  | 0.30 (0.00–0.60) |  | 262.7 (156.0–391.0) |  | 1.87 (047–4.67) |  | 142.4 (0.00–277) | |
| HT+PTCpatients | 231 | 6.09 (2.20–12.90) | | 3.75 (1.20–10.50) | |  | 1.95 (0.80–4.30) |  | 0.32 (0.10–0.60) |  | 262.5 (142.0–495.0) |  | 2.01 (0.65–6.18) |  | 143.1( 0.00–277) | |
| **Patients without HT** |  |  | 0.291 |  | | 0.233 |  | 0.71 |  | 0.546 |  | 0.007 |  | 0.183 |  | 0.011 |
| Benign patients | 70 | 5.71 (2.80–10.40) | | 3.43 (1.40–6.30) | |  | 1.86 (1.10–3.30) |  | 0.30 (0.00–0.60) |  | 311.4 (129–580) |  | 1.92 (0.47–4.18) |  | 178.1 (73.33–468.67) | |
| PTC patients | 273 | 5.91 (3.10–10.60) | | 3.61 (1.40–8.50) | |  | 1.89 (0.70-5.00) | | 0.30 (0.00–0.70) |  | 257.1 (90.0–504) |  | 2.09 (0.72–7.56) |  | 145.5 (0.00–368.57) | |

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**Online resource 3.** Immunofluorescence flow detection in different patients. The percentage of CD4+/CD8+ CD3+ cells (A), and lymphocyte factor levels in normal patients (B). The percentage of CD4+/CD8+ CD3+ cells (C), and lymphocyte factor levels (D) in patients with Hashimoto’s thyroiditis (HT). The percentage of CD4+/CD8+ CD3+ cells (E), and lymphocyte factor levels (F) in patients with papillary thyroid cancer (PTC). The percentage of CD4+/CD8+ CD3+ cells (G), and lymphocyte factor levels (H) in patients with PTC+HT.

**Online resource 4:** Immunofluorescence flow detection between patients with papillary thyroid cancer (PTC) with and without Hashimoto’s thyroiditis (HT)

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| --- | --- | --- | --- |
| Variables | HT patients (n=46) | PTC+HT (n=62) | P value |
| CD3% | 70.45±6.97 | 61.60±8.27 | 0.023 |
| IL-2 pg/mL | 1.25±0.69 | 0.95±0.3 4 | 0.144 |
| IL-4 pg/mL | 1.16±0.51 | 1.65±0.63 | 0.315 |
| IL-6 pg/mL | 5.04±2.30 | 5.10±1.19 | 0.967 |
| IL-10 pg/mL | 2.36±0.90 | 3.11±0.98 | 0.355 |
| TNF-α pg/mL | 1.64±0.37 | 1.73±0.80 | 0.889 |
| IFN-γ pg/mL | 1.61±0.81 | 1.18±0.45 | 0.081 |
| CD4% | 41.20±10.60 | 31.03±5.15 | 0.004 |
| CD8% | 25.67±6.90 | 25.38±7.34 | 0.913 |

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**Online resource 5.** CD3+ (a), CD4+ (c), and CD8+ cell (e) infiltration in patients with Hashimoto’s thyroiditis (20X). CD3+ cell (b), CD4+cell (d), and CD8+ cell (f) infiltration in patients with papillary thyroid cancer and Hashimoto’s thyroiditis (20X).