

**Table S1** Univariate analysis for each group of parameters

Laboratory parameters	Group I		Group II		Group III	
	OR value	P value	OR value	P value	OR value	P value
Total protein (TP) (g/L)	0.985	0.57	0.940	0.006	0.967	0.11
Albumin (ALB) (g/L)	0.802	<0.001	0.784	<0.001	0.989	0.77
Globulin (GLB) (g/L)	1.120	0.002	1.034	0.25	0.950	0.07
Prealbumin (PAB) (mg/L)	0.024	0.12	0.151	0.36	6.327	0.42
Total cholesterol (CHOL) (mmol/L)	1.502	0.006	1.290	0.06	0.868	0.24
High density lipoprotein cholesterol (HDL-C) (mmol/L)	0.114	<0.001	0.114	<0.001	0.763	0.42
Low density lipoprotein cholesterol (LDL-C) (mmol/L)	1.280	0.14	1.394	0.02	1.077	0.60
Triglyceride (TG) (mmol/L)	3.045	<0.001	2.712	<0.001	0.884	0.32
Lipoprotein [Lp(a)] (nmol/L)	1.026	0.001	1.029	<0.001	1.006	0.17
Aspartate transaminase (AST) (U/L)	1.015	0.38	0.990	0.49	0.983	0.20
Alanine transaminase (ALT) (U/L)	1.017	0.09	1.015	0.06	1.001	0.87
Creatine kinase (CK) (U/L)	1.002	0.34	1.000	0.87	0.999	0.35
Lactate dehydrogenase (LDH) (U/L)	1.001	0.70	0.994	0.08	0.994	0.07
Alpha-hydroxybutyrate dehydrogenase (HBDH) (U/L)	1.011	0.02	0.999	0.75	0.991	0.02
Alkaline phosphatase (ALP) (U/L)	1.029	<0.001	1.008	0.11	0.985	0.003
Gamma-glutamyltranspeptidase (GGT) (U/L)	1.023	0.003	1.018	0.01	0.995	0.18
Total bilirubin (TBIL) (umol/L)	0.991	0.69	0.996	0.81	1.002	0.90
Direct bilirubin (DBIL) (umol/L)	0.850	0.05	0.892	0.09	1.032	0.62
Indirect bilirubin (IBIL) (umol/L)	1.008	0.79	1.006	0.80	1.000	>0.99
Total bile acids (TBA) (umol/L)	1.087	0.03	1.067	0.07	0.976	0.42
Urea (mmol/L)	1.145	0.17	1.004	0.96	0.904	0.22
Creatinine (CREA) (umol/L)	1.001	0.95	0.996	0.61	0.995	0.60
Uric acid (URIC) (umol/L)	1.003	0.03	1.003	0.03	1.000	0.87
Serum calcium (Ca) (mmol/L)	5.005	0.20	0.469	0.48	0.170	0.09
Phosphorus (PHOS) (mmol/L)	3.552	0.08	10.276	<0.001	2.682	0.12
Na (mmol/L)	1.319	<0.001	1.123	0.03	1.002	0.60
K (mmol/L)	0.542	0.08	1.047	0.59	1.190	0.54
Cl (mmol/L)	1.017	0.57	1.018	0.46	1.000	0.98
Glucose (Glu) (mmol/L)	5.861	<0.001	3.342	<0.001	0.743	0.004
White blood cell (WBC) (10 <sup>9</sup> /L)	1.486	<0.001	1.633	<0.001	1.116	0.12
Neutrophil (NE) (10 <sup>9</sup> /L)	1.614	<0.001	1.858	<0.001	1.115	0.23
lymphocyte (LY) (10 <sup>9</sup> /L)	1.734	0.01	2.085	<0.001	1.229	0.24
Monocyte (MO) (10 <sup>9</sup> /L)	75.780	<0.001	227.873	<0.001	3.366	0.17
Eosinophil (EO) (10 <sup>9</sup> /L)	0.178	0.22	1.685	0.58	7.985	0.10
Basophil (BA) (10 <sup>9</sup> /L)	<0.001	0.14	<0.001	0.11	1.307	0.96
Red blood cell (RBC) (10 <sup>12</sup> /L)	1.524	0.10	1.403	0.12	1.012	0.77
Hemoglobin (HGB) (g/L)	1.004	0.68	0.990	0.12	0.989	0.10
Hematocrit (HCT) (%)	0.961	0.22	0.939	0.01	0.973	0.29
Mean corpuscular volume (MCV) (fL)	0.834	<0.001	0.817	<0.001	0.966	0.13
Mean corpuscular hemoglobin (MCH) (pg)	0.851	0.03	0.759	<0.001	0.887	0.02
Mean corpuscular hemoglobin concentration (MCHC) (g/L)	1.061	<0.001	1.011	0.17	0.978	0.01
Red blood cell distribution width (RDW) (%)	1.531	0.009	1.850	<0.001	1.184	0.11
Platelet (PLT) (10 <sup>9</sup> /L)	1.004	0.07	1.006	0.001	1.002	0.25
Platelet distribution width (PDW) (fL)	0.795	0.001	0.872	0.009	1.059	0.32
Mean platelet volume (MPV) (fL)	0.591	<0.001	0.705	0.003	1.135	0.33
Platelet-larger cell ratio (P-LCR) (%)	0.940	0.001	0.959	0.004	1.015	0.35
Systemic immune-inflammation index (SII)	1.001	0.01	1.001	0.001	1.000	0.61
Systemic inflammatory response index (SIRI)	3.484	<0.001	4.254	<0.001	1.160	0.47
Antithyropoxidase antibody (Anti-TPO) (U/mL)	1.003	0.12	1.006	0.06	1.000	0.06
Antithyroglobulin antibody (Anti-Tg) (U/mL)	1.100	<0.001	1.059	<0.001	1.001	0.05
Total triiodothyronine (TT3) (ng/mL)	1.000	0.70	0.521	0.25	0.734	0.57
Total thyroxine (TT4) (μg/dL)	0.973	0.73	1.061	0.28	1.069	0.26
Free triiodothyronine (FT3) (pg/mL)	0.062	<0.001	0.174	<0.001	1.101	0.72
Free thyroxine (FT4) (ng/dL)	1.017	0.98	1.032	0.62	1.031	0.66
Serum thyroid stimulating hormone (sTSH) (uIU/mL)	0.493	<0.001	0.921	0.30	1.393	0.003

Group I, BTN group and Healthy group; Group II, MTN group and Healthy group; Group III, BTN group and MTN group. OR, odds ratio.

**Table S2** Comparison of the expression levels of valuable parameters between BTN group, MTN group, and Healthy group

Laboratory parameters	Healthy group	BTN group	MTN group	P value
Anti-Tg, M (P25, P75) (U/mL)	15 (15, 18.73) <sup>a***b***</sup>	19.75 (15, 28.05)	19.55 (15, 69.2)	<0.001
TT3, M (P25, P75) (ng/mL)	1.1 (1.03, 1.19)	1.08 (0.96, 1.22)	1.08 (0.97, 1.18)	0.13
GLU, M (P25, P75) (mmol/L)	4.43 (4.11, 4.79) <sup>a***b***</sup>	5.12 (4.67, 5.72) <sup>c**</sup>	4.88 (4.47, 5.27)	<0.001
Lp(a), M (P25, P75) (nmol/L)	10.05 (6.8, 19.48) <sup>b**</sup>	13.5 (8.15, 24.63)	13.9 (7.8, 29.75)	0.004
WBC, M (P25, P75) (10 <sup>9</sup> /L)	5.45 (4.62, 6.39) <sup>a***b***</sup>	6.37 (5.2, 7.1)	6.48 (5.47, 7.55)	<0.001
PLT, M (P25, P75) (10 <sup>9</sup> /L)	235.5 (212.25, 267) <sup>b**</sup>	249 (209, 292)	250 (222.25, 301)	0.003
FT3, M (P25, P75) (pg/mL)	3.41 (3.23, 3.57) <sup>a***b***</sup>	3.15 (2.95, 3.3)	3.13 (2.85, 3.37)	<0.001
sTSH, M (P25, P75) (uIU/mL)	1.94 (1.4, 2.66) <sup>a***b**</sup>	1.49 (0.86, 2) <sup>c*</sup>	1.61 (1.14, 2.43)	<0.001
HDL-C, M (P25, P75) (mmol/L)	1.54 (1.23, 1.69) <sup>a***b***</sup>	1.27 (1.06, 1.5)	1.2 (1, 1.4)	<0.001
ALB, (M±SD) (g/L)	46.80±2.12 <sup>a***b***</sup>	45.22±3.19	45.12±2.93	<0.001
MCH, M (P25, P75) (pg)	30.5 (29.5, 31.3) <sup>b***</sup>	30.4 (29.03, 31.4)	29.75 (28.6, 31.8)	<0.001

Continuous data of normal were presented as M±SD, continuous data of non-normal were presented as M (P25, P75). <sup>a</sup>, statistically significant difference in Healthy group compared to BTN group; <sup>b</sup>, statistically significant difference in Healthy group compared to MTN group; <sup>c</sup>, statistically significant difference in BTN group compared to MTN group. \*, P<0.05; \*\*, P<0.01; \*\*\*, P<0.001. Healthy group, healthy individuals; BTN group, patients with benign thyroid nodules; MTN group, patients with malignant thyroid nodules; Anti-Tg, antithyroglobulin antibody; TT3, total triiodothyronine; Glu, glucose; Lp(a), lipoprotein; WBC, white blood cell; PLT, platelet; FT3, free triiodothyronine; sTSH, serum thyroid stimulating hormone; HDL-C, high density lipoprotein cholesterol; ALB, albumin; MCH, mean corpuscular hemoglobin; M±SD, mean ± standard deviation; M (P25, P75), median (25<sup>th</sup> percentile, 75<sup>th</sup> percentile).