group FT_3, FT_4 were higher than control group ($p<0.01$), TSH were lower than control group ($p<0.05$).
2. In the hyperthyroid group carotid artery structural parameter IMT were higher than control group (483.18±96.61 vs 442.35 ±81.41/m, $p<0.01$); function parameter PWV were higher than control group (7.46±3.26 vs 5.80±2.08, 6.38±1.4 vs 15.55 ±1.03 m/s, $p<0.01$), CC were lower than control group (0.95 ±0.36 vs 1.22±0.39, $p<0.01$).
3. Every structure and function parameters were correlated with age significantly, after adjustment for age, CC were associated with diastolic blood pressure and heart rate ($r=0.392$, $r=-0.294$, $p<0.05$), β were associated with diastolic blood pressure ($r=-0.440$, $p<0.01$), PWV were associated with pulse pressure and heart rate ($r=0.303$, $r=0.295$, $p<0.01$); parameters were not associated with body mass index and thyroid hormone level ($p>0.05$).

Conclusions

1. The structure and function of carotid artery in patients with hyperthyroidism damage.
2. The hyperthyroid patients carotid artery in the early damage closely related with haemodynamic changes.
3. The RF ultrasound technology can be used to evaluate the structure and function of carotid artery in hyperthyroid patients.

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QUANTITATIVE EVALUATION OF CAROTID FUNCTION AND STRUCTURE IN HYPERTHYROIDISM PATIENTS BY ULTRASOUND RADIO FREQUENCY DATA TECHNOLOGY

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Objectives The research and application of RF-data technology non-invasive observation of hyperthyroidism in patients with carotid artery structure parameter (IMT) and functional parameters (CC, β, PWV) changes from two aspects, the structure and function of carotid artery damage evaluation and discuss the influential factors, in order to facilitate early detection and intervention in patients with hyperthyroidism clinical vascular lesions.

Methods 71 patients with primary hyperthyroidsm which is not yet in treatment were involved into study as hyperthyroidsm group. 71 healthy volunteers were supplied as normal control group cases which matched in age and gender. Application of RF-data for measuring and comparing the two groups of the common carotid artery structural parameters of intima-media thickness (IMT) and functional parameters compliance coefficient (CC), stiffness index (β), pulse wave velocity (PWV), evaluation of hyperthyroidism vascular damage and the correlation between the parameters and age, body mass index, haemodynamic parameters (blood pressure, heart rate), thyroid hormone levels and other risk factors.

Results

1. The age, gender differences between the two groups had no statistical significance ($p>0.05$); hyperthyroidism group, body mass index, diastolic blood pressure were lower than control group ($p<0.01$), systolic blood pressure, pulse pressure, heart rate were higher than control group ($p<0.01$); hyperthyroidism