**Supplementary Table 1.** Univariate and Multivariate Odds Ratio of Risk Factor for the NAFLD based on TSH Status (Fasting sample).

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | Univariate model |  | Multivariate model |  | Multivariate model |  |
|  | OR (95% CI) | P-value | OR (95% CI) | P-value | OR (95% CI) | P-value |
| TSH |  |  |  |  |  |  |
| Strict-normal (0.4-2.5) | 1 |  | 1 |  | 1 |  |
| Low thyroid function (≥ 2.5) | 1.46 (1.13-1.90) | 0.005 | 1.25 (0.96-1.63) | 0.092 | 1.26 (0.96-1.59) | 0.103 |
|  |  |  |  |  |  |  |
| TSH |  |  |  |  |  |  |
| Strict-normal (0.4-2.5) | 1 | 0.004\* | 1 | 0.089\* | 1 | 0.085\* |
| Low-normal (2.5-4.5) | 1.44 (1.07-1.92) | 0.016 | 1.26 (0.93-1.69) | 0.130 | 1.26 (0.93-1.71) | 0.133 |
| Subclinical (> 4.5) | 1.56 (1.05-2.33) | 0.028 | 1.25 (0.84-1.85) | 0.268 | 1.26 (0.85-1.87) | 0.240 |
|  |  |  |  |  |  |  |

Abbreviations: NAFLD, nonalcoholic fatty liver disease; TSH, thyroid-stimulating hormone; OR, odds ratio; CI, confidence interval.

Low thyroid function was defined as both ‘low-normal’ thyroid function and subclinical hypothyroidism. ‘Low-normal’ thyroid function was defined as higher plasma TSH level (2.5 to 4.5 mIU/L) within the euthyroid reference range. ‘Strict-normal’ thyroid function was defined as 0.39 to 2.5 mIU/L for plasma TSH and normal T4 level. Subclinical hypothyroidism was defined as a serum TSH level over 4.5 mIU/L, with a normal T4 level.

The multivariate model 1 was adjusted for age, sex, Race/ethnicity, body mass index, waist circumference, smoking status, economic status, diabetes, hypertension, alanine aminotransferase, cholesterol, high-density lipoprotein total cholesterol, history of cardiovascular disease, and sedentary lifestyle.

The multivariate model 2 included HOMA-IR in addition to the variables addressed in multivariate model 1.

\*P-value for the test of trend of odds.

**Supplementary Table 2.** Association between TSH Status or NAFLD Status and All-Cause Mortality.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | Univariate model |  | Multivariate model |  |
|  | HR (95% CI) | P-value | HR (95% CI) | P-value |
| TSH |  |  |  |  |
| Strict-normal (0.4-2.5) | 1 |  | 1 |  |
| Low thyroid function (≥ 2.5) | 1.66 (1.36-2.02) | <0.001 | 1.19 (1.01-1.40) | 0.034 |
|  |  |  |  |  |
| TSH |  |  |  |  |
| Strict-normal (0.4-2.5) | 1 | <0.001\* | 1 | 0.022\* |
| Low-normal (2.5-4.5) | 1.53 (1.21-1.94) | 0.001 | 1.15 (0.94-1.41) | 0.179 |
| Subclinical (> 4.5) | 2.12 (1.48-3.04) | <0.001 | 1.34 (0.94-1.92) | 0.101 |
|  |  |  |  |  |
| NAFLD |  |  |  |  |
| No NAFLD | 1 |  | 1 |  |
| NAFLD | 1.34 (1.15-1.57) | <0.001 | 0.94 (0.78-1.13) | 0.518 |
|  |  |  |  |  |

Abbreviations: TSH, thyroid-stimulating hormone; HR, hazard ratio; CI, confidence.

Low thyroid function was defined as both ‘low-normal’ thyroid function and subclinical hypothyroidism. ‘Low-normal’ thyroid function was defined as higher plasma TSH level (2.5 to 4.5 mIU/L) within the euthyroid reference range. ‘Strict-normal’ thyroid function was defined as 0.39 to 2.5 mIU/L for plasma TSH and normal T4 level. Subclinical hypothyroidism was defined as a serum TSH level over 4.5 mIU/L, with a normal T4 level.

The multivariate model was adjusted for age, sex, Race/ethnicity, body mass index, waist circumference, smoking status, economic status, diabetes, hypertension, alanine aminotransferase, total cholesterol, high-density lipoprotein cholesterol, history of cardiovascular disease, sedentary lifestyle, and HOMA-IR.

\*P-value for the test of trend of odds.

**Supplementary Table 3.** Association between TSH Status and All-Cause Mortality stratified by presence or absence of NAFLD.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | No NAFLD |  | NAFLD |  |
|  | HR (95% CI) | P-value | HR (95% CI) | P-value |
| TSH |  |  |  |  |
| Strict-normal (0.4-2.5) | 1 |  | 1 |  |
| Low thyroid function (≥ 2.5) | 0.90 (0.67-1.21) | 0.470 | 1.57 (1.21-2.04) | 0.001 |
|  |  |  |  |  |
| TSH |  |  |  |  |
| Strict-normal (0.4-2.5) | 1 | 0.518\* | 1 | 0.001\* |
| Low-normal (2.5-4.5) | 0.90 (0.66-1.23) | 0.496 | 1.48 (1.08-2.01) | 0.015 |
| Subclinical (> 4.5) | 0.89 (0.49-1.62) | 0.702 | 1.92 (1.19-3.12) | 0.009 |
|  |  |  |  |  |

Abbreviations: TSH, thyroid-stimulating hormone; NAFLD, nonalcoholic fatty liver disease; HR, hazard ratio; CI, confidence interval.

Low thyroid function was defined as both ‘low-normal’ thyroid function and subclinical hypothyroidism. ‘Low-normal’ thyroid function was defined as higher plasma TSH level (2.5 to 4.5 mIU/L) within the euthyroid reference range. ‘Strict-normal’ thyroid function was defined as 0.39 to 2.5 mIU/L for plasma TSH and normal T4 level. Subclinical hypothyroidism was defined as a serum TSH level over 4.5 mIU/L, with a normal T4 level.

The multivariate model was adjusted for age, sex, Race/ethnicity, body mass index, waist circumference, smoking status, economic status, diabetes, hypertension, alanine aminotransferase, total cholesterol, high-density lipoprotein cholesterol, history of cardiovascular disease, sedentary lifestyle, and HOMA-IR.

\*P-value for the test of trend of odds.

**Supplementary Table 4.** Association of TSH Status, Cardiovascular disease and Cancer-Related Mortality stratified by presence/absence of NAFLD.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| TSH | Total population |  | No NAFLD |  | NAFLD |  |
|  | HR (95% CI) | P-value | HR (95% CI) | P-value | HR (95% CI) | P-value |
| Cardiovascular mortality |  |  |  |  |  |  |
| Strict-normal (0.4-2.5) | 1 |  | 1 |  | 1 |  |
| Low thyroid function (≥ 2.5) | 1.42 (0.99-2.02) | 0.054 | 0.91 (0.58-1.45) | 0.689 | 2.20 (1.09-4.41) | 0.028 |
|  |  |  |  |  |  |  |
| Strict-normal (0.4-2.5) | 1 | 0.039\* | 1 | 0.619\* | 1 | 0.019\* |
| Low-normal (2.5-4.5) | 1.34 (0.89-2.01) | 0.157 | 0.94 (0.57-1.55) | 0.803 | 1.95 (0.94-4.05) | 0.073 |
| Subclinical  (> 4.5) | 1.69 (0.91-3.13) | 0.095 | 0.82 (0.35-1.89) | 0.627 | 2.92 (1.04-8.18) | 0.041 |
|  |  |  |  |  |  |  |
| Cancer mortality |  |  |  |  |  |  |
| Strict-normal (0.4-2.5) | 1 |  | 1 |  | 1 |  |
| Low thyroid function (≥ 2.5) | 1.21 (0.82-1.78) | 0.321 | 0.97 (0.54-1.74) | 0.924 | 1.41 (0.74-2.67) | 0.284 |
|  |  |  |  |  |  |  |
| Strict-normal (0.4-2.5) | 1 | 0.233\* | 1 | 0.940\* | 1 | 0.315\* |
| Low-normal (2.5-4.5) | 1.17 (0.74-1.85) | 0.489 | 0.91 (0.45-1.84) | 0.796 | 1.48 (0.72-3.04) | 0.284 |
| Subclinical  (> 4.5) | 1.34 (0.81-2.20) | 0.248 | 1.15 (0.57-2.33) | 0.698 | 1.23 (0.59-2.57) | 0.570 |
|  |  |  |  |  |  |  |

Abbreviations: TSH, thyroid-stimulating hormone; NAFLD, nonalcoholic fatty liver disease; HR, hazard ratio; CI, confidence interval.

Low thyroid function was defined as both ‘low-normal’ thyroid function and subclinical hypothyroidism. ‘Low-normal’ thyroid function was defined as higher plasma TSH level (2.5 to 4.5 mIU/L) within the euthyroid reference range. ‘Strict-normal’ thyroid function was defined as 0.39 to 2.5 mIU/L for plasma TSH and normal T4 level. Subclinical hypothyroidism was defined as a serum TSH level over 4.5 mIU/L, with a normal T4 level.

The multivariate model was adjusted for age, sex, Race/ethnicity, body mass index, waist circumference, smoking status, economic status, diabetes, hypertension, alanine aminotransferase, total cholesterol, high-density lipoprotein cholesterol, history of cardiovascular disease, sedentary lifestyle, and HOMA-IR.

\*P-value for the test of trend of odds