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Prevention

SUBCLINICAL HYPOTHYROIDISM AND MICROALBUMINURIA: INSIGHTS FROM NHANES-III

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Background: Studies suggest sub clinical hypothyroidism (SCH) is related to cardiovascular mortality (CVM). We explored the relationship of SCH on the prevalence of microalbuminuria (MIA) which is a strong marker for CV disease.

Methods: We explored the NHANES-III database (n=6812). We excluded individuals <40 years, TSH levels ≥20 and ≤0.35mIU/L, eGFR<60 ml/min/1.73m2 and urine albumin to creatinine ratio (UCR) of >250 mg/g in men and >355 mg/g in women (macroalbuminuria). We defined SCH as individuals with TSH levels between 5-19.99 mIU/L and serum T4 levels between 5-12 µg/dl. Individuals with TSH levels between 0.36-4.99 were considered euthyroid. MIA was defined as UCR of 17-250 mg/g in men and 25-355 mg/g in women. Survey weights were used to account for complex survey design.

Results: Prevalence of African American ethnicity was 9.5% versus 3.2% (p-value-<0.001), male sex 48.9% versus 28.7% (p-value-<0.001), mean age 55.3 versus 59.6 years (p-value-<0.001), MIA 11.9% versus 19.2% (p-value-0.001), diabetes 8.1% versus 9.3% (p-value-0.6), hypertension 34.4% versus 43.3% (p-value-0.02) in individuals with euthyroid (n=6503) and SCH group (n=309) respectively. The odds of having microalbuminuria was 1.75 (95% CI-1.24-2.48, p-Value-0.002) and 1.83 (95% CI -1.2-2.79, p-Value-0.006) on univariate and step-wise multivariate logistic regression models respectively, in individuals with SCH.

Conclusion: SCH is a strong independent predictor of MIA in a healthy population.

Subclinical hypothyroidism as a predictor of microalbuminuria in a healthy cohort

	Odds Ratio	95% CI	p-value
Model 1	1.75	1.24-2.48	0.002
Model 2	1.63	1.1-2.42	0.017
Model 3	1.76	1.15-2.7	0.01
Model 4	1.83	1.2-2.79	0.006

Model 1: Univariate analysis
Model 2: Adjusted for age, race and sex
Model 3: Adjusted for smoking status, diabetes, systolic blood pressure (log-transformed), ratio of total cholesterol to HDL-cholesterol (log-transformed), family history of MI before age 50 years in addition to model 2
Model 4: Adjusted for BMI (log-transformed), eGFR and C-reactive protein in addition to model 3