

Hypothyroidism: Another Risk Factor for the Development of Diabetes in an Already Vulnerable Asian Indian Population?

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Editorial

Recently, Gronich et al. published a wonderful study postulating several molecular mechanisms that may explain the complex interplay between hypothyroidism, subclinical hypothyroidism, and statin use vis-à-vis the development of diabetes mellitus (DM), and elucidated this in clinical practice. Hypothyroidism was found to carry an increased risk for developing new-onset DM in both the statin (RR 2.06 [95% CI 1.42–2.99]) and the non-statin (RR 1.66 [95% CI 1.05–2.64]) cohort. On the other hand, subclinical hypothyroidism seemed to only factor in the development of DM in patients on a statin (RR 1.94 [95% CI 1.13–3.34]), as opposed to those not on a statin (RR 1.20 [95% CI 0.52–2.75]). Although over 90% of the participants in this study were of Jewish ethnicity, a multivariate analysis calculated Arab ethnicity as having a RR of 1.50 (95% CI 1.40–1.62) for developing DM associated with statin use and thyroid disease [1].

Not long ago, a cohort study from Chennai, India reported the incidence rate of progression to type 2 diabetes mellitus (T2DM) amongst individuals with prediabetes to be as high as 78.9 per 1000 person-years (95% CI 68.0–90.9). Anjana et al. also noted that out of the 1007 subjects that had normal glucose tolerance at baseline, 209 developed T2DM after 9.1 years (incidence rate of 22.2 per 1,000 person-years [95% CI 19.4–25.4]). These findings again confirm that Asian Indians, due to various environmental and genetic factors, are at a higher risk of developing T2DM, as opposed to their Caucasian counterparts. Alarming, this rate of progression is similar to that reported in small, secluded and homogenous populations (e.g. Pima Indians) [2]. We also know that the prevalence of hypothyroidism in India is approximately 11%, which is well above the prevalence of less than 5% in the United States and less than 2% in the United Kingdom [3]. The data on subclinical hypothyroidism is less clear. Deshmukh et al. screened 237 normal subjects and found 11.3% to have subclinical hypothyroidism (74% were within the 35–54 years age group) [4]. Notably, this age bracket overlaps with the prediabetes subgroup that progressed to T2DM in the Chennai cohort [2]. Unfortunately, India also has the highest burden of cardiovascular disease amongst the developing nations. This necessitates the need for risk factor modification. An observational study, from February 2006 to January 2010, noted that monthly statin prescriptions rose from 45.8 to 84.1

per 1000 patients with coronary heart disease. This translated into a staggering 3,950,193 prescriptions written per month at study end. Nonetheless, it was felt that still only a fraction of patients eligible for a statin actually received it, leaving room for improvement [5]. This is noteworthy as historical data suggests that individuals of Asian origin, women and the elderly are more at risk of developing statin-associated DM [1].

Undoubtedly, India faces troubled times ahead as the burden of non-communicable diseases rises day by day. In an attempt to stem this tide, cohort studies such as that by Anjana et al. have identified potentially modifiable risk factors (e.g. physical inactivity) that may serve as a target for public health initiatives. However, none have looked that the crucial role that hypothyroidism and subclinical hypothyroidism (in the setting of statin therapy) play in an already susceptible cohort. The need of the hour is for ethnic specific data to understand whether these entities pose the same or an increased risk for new-onset diabetes in a vulnerable Asian Indian population, and whether strategies such as a population based screening approach for hypothyroidism/subclinical hypothyroidism will be beneficial in terms of timely intervention versus their burden of cost.

References

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