Iodinated Contrast Medium Exposure During Computed Tomography Increase the Risk of Subsequent Development of Thyroid Disorders in Patients Without Known Thyroid Disease

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ABSTRACT

Abstract: To investigate the association between iodinated contrast medium (ICM) exposure during computed tomography (CT) and the subsequent development of thyroid disorders in patients without known thyroid disease in Taiwan, an iodine-sufficient area. We conducted a population-based cohort study by using data from 1996 to 2012 in the Taiwan National Health Insurance Research Database. A total of 33,426 patients who underwent ICM-enhanced CT were included as the study cohort. To avoid selection bias, we used propensity score and matched for the index year (defined as the year of first ICM exposure) to retrieve 33,426 patients as the comparison cohort. No patients in the 2 cohorts had any known thyroid disease before the index year. Patients with a history of amiodarone treatment or coronary angiography and those with <1 year follow-up were excluded. Participants were followed until a new diagnosis of thyroid disorder or December 31, 2011. Hazard ratios (HRs) with 95% confidence interval (95% CI) were calculated using the Cox proportional hazards regression.

An association was identified between ICM exposure and the subsequent development of thyroid disorders after adjustment for potential confounders (adjusted HR = 1.17; 95% CI: 1.07–1.29; P = 0.001). Male patients and patients’ ages ≥40 years in the ICM-exposure cohort had a higher adjusted HR for developing thyroid disorders than did those in the non-ICM-exposure cohort. Hypothyroidism had the highest adjusted HR (HR = 1.37; 95% CI: 1.06–1.78; P < 0.05) among all thyroid disorders and had a higher risk of development or detection during >0.5-year post-ICM exposure compared with that during ≤0.5-year post-ICM exposure (HR = 1.26; 95% CI: 1.01–1.58; P < 0.05). Repeated ICM exposure increased the risk of thyroid disorders in patients who accepted >1 time of ICM per year on average compared with those who accepted ≤1 time per year on average (adjusted HR = 3.04; 95...