G-E-5

A Prospective Study of Thyroid Nodule Development during Pregnancy in a Borderline Iodine Deficient Area

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Epidemiology data has revealed a higher prevalence of nodular goiters in women than men in both iodine sufficient as well as iodine deficient areas. Increased prevalence of thyroid nodules has also been reported in women with higher gravidity. To evaluate whether pregnancy will induce thyroid nodule formation, we conducted the first prospective study on ultrasound assessment in 221 women residing in a borderline iodine sufficient area. Thyroid ultrasound was performed using a 7.5 MHz transducer during first (T1), second (T2) and third (T3) trimesters of pregnancy as well as 6 weeks and 3 months post partum (pp). Thyroid nodules > 2 mm in any dimension were detectable in 34 (15.3%) subjects at T1, with 15 subjects having more than one nodule. Women with thyroid nodules at T1 were older ($p < 0.01$) and had higher gravidy ($p < 0.02$) compared with those women without thyroid nodules. The volume of the single/dorminant nodules (height × length × width) increased from 116 (28-657) mm^3, median (interquartile range) at T1 to 125 (50–784) mm^3 at T2 ($p = 0.09$) and 125 (50 – 901) mm^3 at T3 ($p < 0.02$). These nodules remained enlarged at 189 (49-881) mm^3 6 weeks pp ($p<0.005$) and 140 (43-657) mm^3 at 3 months pp ($p<0.05$). Patients with thyroid nodules had lower TSH values [(0.26 (0.12-2.71) vs 0.48 (0.08-2.03), median (range) $p < 0.03$)] and higher thyroglobulin levels [(5.2 (2.8-43.7) vs 4.4 (1.62-57.2), $p < 0.05$)] at T1 as well as during the second and third trimester of pregnancy. Appearance of new nodules was detected in 21 (10.4%) women as pregnancy advanced (6 women at T2, 10 at T3 and 5 at 6 weeks pp and 2 at 3 months pp). Compared to those with no detectable nodules throughout pregnancy, subjects with new nodule formation had increased urine iodine excretion from T2 onwards (p all < 0.05). However, no difference could be detected in their TSH and Tg levels throughout pregnancy. Fine needle aspiration on nodules > 5 mm in any demension after delivery confirmed that the majority having biological features consistent with nodular hyperplasia. No thyroid malignancy was detected. In conclusion, a rapid enlargement in the size of pre-existing thyroid nodules as well as an increased rate of new nodule formation was seen in women during pregnancy.

G-E-6

Hyperalphalipoproteinaemia in Chinese is Associated with a Reduction in Cholesteryl Ester Transfer Protein Activity

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Objective: Cholesteryl ester transfer protein (CETP) mediates the transfer of neutral lipids between lipoproteins and plays a significant role in HDL metabolism. CETP deficiency is an important cause of hyperalphalipoproteinaemia in Japanese. We have measured CETP activity in healthy subjects from the Hong Kong Cardiovascular Risk Factor Prevalence Study (a territory-wide community-based health survey) whose HDL was $>90^{th}$ percentile to determine whether changes in CETP activity played a role in hyperalphalipoproteinaemia in Chinese.

Methods: Plasma CETP activity of 60 male and 70 female subjects with hyperalphalipoprotein-aemia was compared with that of controls with normal HDL matched for age, sex and body mass index. All subjects were non-smokers. Plasma CETP activity was determined by an isotopic assay measuring the transfer of [^{3}H]cholesteryl oleate from radiolabelled HDL to LDL/VLDL fraction.

Results: The mean HDL level was 1.95 ± 0.18 and 1.99 ± 0.21 mmol/l in male and female subjects with hyperalphalipoproteinaemia and 1.23 ± 0.22 and 1.30 ± 0.22 mmol/l in male and female controls respectively. Plasma CETP activity was significantly lower in subjects with hyperalpha-lipoproteinaemia than that of their matched controls (male: 10.2 ± 4.8 vs 15.8 ± 5.4 %transferred/51 microlitre/4h, $p < 0.01$; female: 10.9 ± 4.3 vs 17.7 ± 5.2, $p < 0.01$). Plasma CETP activity correlated with HDL level in both male and female subjects ($r = -0.47$, $p < 0.01$ and $r = -0.55$, $p < 0.01$ respectively).

Conclusion: Hyperalphalipoproteinaemia in Chinese subjects is associated with a reduction in plasma CETP activity.