Concurrent Session 7: Cardiovascular Disease

Cardiovascular disease risk in women of South Asian origin in Auckland, New Zealand

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Background – Hospitalisation and mortality due to cardiovascular disease (CVD) in South Asian women in New Zealand exceed those from women in the total New Zealand population. Little is known about the risk factors responsible for the increased CVD risk in this fast growing population of New Zealand.
Objective – To investigate the risk factors for CVD in women of South Asian origin living in Auckland, New Zealand.
Design – Cross-sectional data were collected from 224 South Asian women aged >20 years. The subjects were recruited throughout Auckland with a strong focus on Central and South Auckland where the majority of the South Asian community reside. Subjects using medication for diabetes were excluded.
Outcomes – The women's mean (±SD) age was 41.2 ± 10.3 years, they were highly educated (75% ≥ 15 years of education) and 79% of the women have been residing in New Zealand for ≤10 years. Overweight and obesity were prevalent in 72% (BMI ≥23 kg/m^2), central obesity in 30% (waist circumference ≥ 85 cm), waist/stature ratio was increased in 51% (>0.5), TC/HDL-C was increased in 22% (≥4.5), triglyceride concentrations were increased in 20% (≥1.7 mmol/L, 150 mg/dL), hypertension was prevalent in 19% (SBP ≥140 mmHg and/or DBP ≥90 mmHg) and metabolic syndrome in 17% (according to the International Diabetes Federation (IDF) criteria for South Asians), 51% of women had HOMA-insulin resistance (IR) values ≥1.9 and 10% ≥4. Very few women smoked (n=2) and most abstained from alcohol consumption (92%). BMI and waist stature ratio were significantly ($P \leq 0.05$) correlated (controlling for age and years of education) with HOMA-IR (R = 0.51 and 0.46), HDL-C (R = -0.29, -0.31), TC/HDL (R = 0.25, 0.29), triglycerides (R = 0.25, 0.24), systolic blood pressure (R = 0.27, 0.27) and diastolic blood pressure (R = 0.38, 0.31).
Conclusions – The overall prevalence of most risk factors was high, with BMI and waist/stature probably playing an important role in the increased risk. Strategies to improve the CVD risk profile of this population are urgently required.

Epigallocatechin gallate lowers the serum lathosterol to squalene ratio, a novel index of cholesterol synthesis, in the hypercholesterolaemic rabbit model

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Background – Epigallocatechin gallate (EGCG) is a major green tea catechin which is related to the reduction of plasma cholesterol in animal models possibly through inhibition of cholesterol synthesis. Consistent with this, *in vitro* studies have shown EGCG to be a non-competitive inhibitor of squalene epoxidase (1). *In vivo,* inhibition of squalene epoxidase could be expected to reduce, relative to squalene, the amount of lathosterol produced; lathosterol is a cholesterol precursor which is produced after squalene in the cholesterol synthetic pathway.
Objective – To determine the effect of EGCG on lathosterol relative to squalene in the hypercholesterolaemic rabbit.
Design – New Zealand White rabbits (n=12) were fed a rabbit chow with 0.25% (w/w) cholesterol for 2 weeks to render them hypercholesterolaemic. This was followed by a 4-week treatment period during which the control group (n=6) remained on the 0.25% (w/w) cholesterol diet while the treatment group (n=6) was fed the same diet plus 2% (w/w) EGCG added. Serum cholesterol (enzymatic), lathosterol (GC) and squalene (HPLC) were measured.
Outcomes – After the 4-week treatment period, serum lathosterol was significantly reduced in the treatment group compared to control (P=0.03) but the serum squalene did not differ between the groups (P=0.46). Therefore, the serum lathosterol to squalene ratio, a novel index of cholesterol synthesis, was significantly lower in the treatment group compared to control (P=0.03). The EGCG treatment also reduced serum cholesterol by 85% (P=0.02).
Conclusions – These *in vivo* results support the *in vitro* observation that EGCG is an inhibitor of sqalene epoxidase.
References

1. Abe I. *et al.,* (2000). Green tea polyphenols: novel and potent inhibitors of squalene epoxidase. Biochem. Biophys. Res. Commun. 268:767-771.