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Estrogen receptor α gene *Pvu*II polymorphism and coronary artery disease: a meta-analysis of 21 studies

雌激素受体α基因*Pvu*II基因多态性与冠心病关系的meta分析

Key words: Estrogen receptor α gene, Polymorphism, Coronary artery disease (CAD), Meta-analysis
关键词：雌激素受体α；基因多态性；冠心病；Meta 分析

- Coronary artery disease (CAD) is one of the most common chronic diseases in humans. The incidence of coronary artery disease increases year by year,and it has become one of leading causes of death.

- The pathogenesis of coronary artery disease is complex and multifactorial. Previous studies have suggested that the estrogen receptor α gene (ESR1) PvuII polymorphism (c.454-397T>C) may be related to coronary artery disease, but the role of estrogen receptor α gene PvuII polymorphism in CAD is still controversial. Thus, we conducted a meta-analysis to evaluate the relationship.

- A systematically literature search was performed.Data were finally collected from 21 studies encompassing 9926 CAD patients and 16 710 controls. Odds ratios (ORs) with 95% confidence intervals (CIs) were used to assess the relationship between PvuII polymorphism and CAD.

- Pooled ORs and 95% CIs of the stratified meta-analysis.

Stratification	*n*	OR (95% CI)			
		CC vs. TT	CC+CT vs. TT	CC vs. CT+TT	C vs. T
CAD	21	1.36 (1.14–1.62)*	1.20 (1.05–1.38)*	1.15 (1.03–1.28)*	1.14 (1.05–1.23)*
Source of control					
HB	6	1.89 (1.11–3.23)*	1.74 (1.02–2.96)*	1.24 (0.94–1.64)	1.30 (1.07–1.59)*
PB	13	1.13 (1.00–1.28)	1.06 (0.97–1.16)	1.07 (0.97–1.19)	1.06 (0.99–1.12)
PB & HB	2	3.67 (1.45–9.30)*	2.36 (0.67–8.35)	2.44 (1.39–4.28)*	1.81 (1.07–3.07)*
Region					
Asia	11	1.53 (1.17–2.00)*	1.25 (0.99–1.57)	1.36 (1.13–1.63)*	1.20 (1.04–1.39)*
Western	10	1.22 (1.00–1.49)	1.17 (0.99–1.38)	1.04 (0.94–1.16)	1.07 (0.99–1.16)

n: number of studies involved; CC vs. TT: homozygote comparison; CC+CT vs. TT: dominant model; CC vs. CT+TT: recessive genetic model; C vs. T: allele genetic model. CAD: Coronary artery disease; PB: population-based; HB: hospital-based. The random model was chosen for data pooling when $P < 0.10$; otherwise, the fixed model was used; * OR had statistical significance with corresponding 95% CI not including 1.

- In conclusion, our meta-analysis suggested that the estrogen receptor α gene PvuII polymorphism may be associated with CAD susceptibility, especially among Asian populations. It may provide new clues for diagnosis and treatment of the diseases.