Association between CASP-8 gene polymorphisms and cancer risk in some Asian population based on a HuGE review and meta-analysis

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ABSTRACT. Genetic variation in the CASP-8 gene reportedly can increase cancer susceptibility by regulating tumor cell proliferation and apoptosis. Several studies have investigated this possibility; however, the conclusions remain controversial. We made a Human Genome Epidemiology (HuGE) review and did a meta-analysis to explore the association between CASP-8 gene polymorphisms and cancer risk in Asian populations. Based on the inclusion criteria, 12 case-control studies comprising 7720 cancer cases and 9404 healthy controls were retrieved. Meta-analysis results showed that the rs3834129*del allele/carryer were associated with decreased risk of cancer in Asian populations [del allele: odd ratio (OR) = 0.79, 95% confidence interval (95%CI) = 0.75-0.83, P < 0.001; del carrier: OR = 0.77, 95%CI = 0.72-0.82, P < 0.001]. Subgroup analysis showed that the rs3834129*del allele/carryer are protective factors for cancer risk in Chinese populations (del allele: OR = 0.77, 95%CI = 0.73-0.81, P < 0.001; del carrier: OR = 0.75, 95%CI = 0.70-0.80, P < 0.001), but not in Indian and Korean populations. Furthermore, the rs6704688*T allele/carryer, rs3769827*C allele/carryer, rs3769825*C allele/carryer were associated with decreased risk of cancer in Asian populations (all P < 0.05). While the rs7608692*A allele was
associated with increased risk of cancer risk in Asian populations (OR = 1.35, 95%CI = 1.02-1.78, P = 0.03). There was also no significant association between rs3769818, rs13030042, rs13030042, rs1045494, rs1045494, rs2823, or rs113686495, and cancer risk in Asian populations (all P > 0.05). This meta-analysis suggests that the rs3834129*del allele/carry, rs6704688*T allele/carry, rs3769827*C allele/carry, and rs3769825*C allele/carry might be protective factors for cancer risk in Asian populations, while the rs7608692*A allele might be a risk factor for cancer risk in Asian populations.

**Key words:** Caspase 8; Genetic polymorphisms; Asian; Neoplasm; Meta-analysis