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Systematic review on the association between ERCC1 rs3212986 and ERCC2 rs13181 polymorphisms and glioma risk

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ABSTRACT. Several studies have examined the association between excision repair cross-complementation group 1 (ERCC1) C8092A and ERCC2 Lys751Gln polymorphisms and glioma risk, but the results have been inconclusive. We conducted a meta-analysis of 12 studies to determine the association between ERCC1 rs3212986 and ERCC2 rs13181 genes and glioma susceptibility. We searched for relevant studies in both Chinese and English in PubMed, Web of Science, Cochrane Library, and EMBASE through January 1, 2014, and identified 3939 cases and 5407 controls. The results showed that individuals carrying the ERCC1 rs3212986 AA genotype had higher risk of glioma compared with the CC genotype, with a pooled odds ratio = 1.29, 95% confidence interval = 1.07-1.55. Subgroup analysis showed that the ERCC1 rs3212986 AA genotype was significantly associated with an increased risk of glioma in the Chinese population (odds ratio = 1.37, 95% confidence interval = 1.07-1.55), but no association in Caucasian Chinese. No significant association was observed between ERCC2 rs13181 polymorphisms and glioma risk. The results of our meta-analysis strongly suggested that the ERCC1 rs3212986 polymorphism

was associated with a higher susceptibility to glioma, particularly in the Chinese population. Studies including a larger sample size and more specified information regarding pathological types of glioma are needed to confirm our results.

Key words: ERCC1; ERCC2; Glioma; Polymorphism

