Association between \textit{XRCC1} Arg280His polymorphism and risk of hepatocellular carcinoma: a systematic review and meta-analysis

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\textbf{ABSTRACT.} Hepatocellular carcinoma (HCC) is one of the most life-threatening malignancies worldwide. Defects in DNA repair genes may increase the risk of HCC. X-ray cross-complementing group 1 gene (\textit{XRCC1}) is a major DNA repair gene involved in base excision repair. Recently, several studies have indicated that an association exists between \textit{XRCC1} polymorphism and HCC, particularly the Arg280His polymorphism. However, the data is inconsistent and incomplete. In this study, we conducted a meta-analysis to investigate the association...
between the \textit{XRCC1} Arg280His polymorphism and HCC risk. A total of 10 case-control studies included 1848 HCC cases and 1969 controls were examined in this analysis. Our results suggest that variant genotypes of the \textit{XRCC1} Arg280His gene are associated with a significantly increased risk of HCC in homozygote comparison (His\textit{His} vs Arg\textit{Arg}, odds ratio, 1.55, 95\% confidence interval, 1.10-2.18, \textit{P} = 0.013); no heterogeneity was observed ($\textit{I}^2 = 0\%$). Our analysis suggests that the \textit{XRCC1} Arg280His polymorphism is associated with a higher risk of HCC.

\textbf{Key words:} Hepatocellular carcinoma; Meta-analysis; Single nucleotide polymorphism; \textit{XRCC1}-Arg280His