TCF7L2 gene polymorphisms and susceptibility to breast cancer: a meta-analysis

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ABSTRACT. Numerous studies have evaluated the association between TCF7L2 gene polymorphisms (rs12255372 and rs7903146) and breast cancer risk. However, the results have been inconsistent. Therefore, in the current study, we performed a meta-analysis. A systematically literature search of the PubMed and EMBASE databases was conducted in November 2013, and the reference lists of articles were retrieved. A summary odds ratio (OR) with its 95% confidence interval (CI) were calculated to evaluate the strength of association. Publication bias was investigated using Begg’s funnel plot. Meta-analysis was performed using STATA package version 12.0. A total of 4 case-control studies met our inclusion criteria, including 4600 cases and 5289 controls. Overall, TCF7L2 gene polymorphisms were significantly associated with an increased risk of breast cancer in genetic comparison models (rs12255372 for GG vs GT: OR = 0.90, 95%CI = 0.83-0.98; rs7903146 for CC vs TT: OR = 0.75, 95%CI = 0.63-0.90, CC vs CT: OR = 0.88, 95%CI = 0.81-0.97, dominant model: OR = 1.16, 95%CI = 1.06-1.27, recessive model: OR = 0.79, 95%CI = 0.67-0.94). This meta-analysis demonstrated that TCF7L2 gene polymorphisms (rs12255372 and
rs7903146) are associated with an increased susceptibility to breast cancer. However, further studies including large sample sizes are needed to validate this association.

**Keywords:** Breast cancer; Metal analysis; TCF7L2 gene polymorphism