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Poster Presentations

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MDM2 gene rs2239745 polymorphism and breast cancer risk: A systematic review and meta-analysis

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Background: Several case-control studies have previously assessed the association of mouse double minute 2 homolog (*MDM2*) gene rs2239745 polymorphism and the risk of breast cancer (BC) that has resulted in incongruous conclusions.

Objective: In order to clarify the conflicting outcomes obtained from different individual association studies, here we performed the most updated meta-analysis of rs2239745 polymorphism and risk of BC.

Materials and Methods: A comprehensive systematic search of literature, including Web of Science, Scopus, and PubMed/Medline was carried out prior to August 2020, and the pooled odds ratio

(OR) and their corresponding 95% confidence interval (CI) were calculated to determine the overall association power in the pooled population.

Results: Literature search led to retrieving of 31 case-control studies, containing 14638 cases and 17767 non-cancer controls. The pooled analysis indicated that the dominant model (OR = 1.05, 95% CI = 1 - 1.11, $p = 0.03$), recessive model (OR = 1.16, 95% CI = 1.01 - 2.32, $p = 0.03$), allelic model (OR = 1.06, 95% CI = 1.02 - 1.10, $p < 0.001$), GG vs. TT model (OR = 1.23, 95% CI = 1.06 - 1.43, $p < 0.001$), and GT vs. TT model (OR = 1.05, 95% CI = 1 - 1.11, $p < 0.001$) was significantly associated with increased risk of BC. This polymorphism was also associated with increased risk of BC in Caucasians (dominant, allelic, and homozygote models) and Asians (allelic, homozygote, and heterozygote models).

Conclusion: The current meta-analysis suggests that *MDM2* gene rs2239745 polymorphism is a predisposing genetic factor in BC, particularly in Caucasians and Asians.

Key words: Breast cancer, *MDM2*, Polymorphism, Meta-analysis.