INPLASY PROTOCOL

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None declared.

Susceptibility of TNFAIP8, TNFAIP8L1, and TNFAIP2 Gene Polymorphisms on Cancer Risk: A Comprehensive Review and Meta-Analysis of Case-Control Studies

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Review question / Objective: **Several case control studies were conducted on the the connection of TNFAIP8 and TNFAIP2 gene polymorphisms with cancer and outcome is not consistent. A meta analysis combining these case control studies may give us a clear scenario of the connection of TNFAIP8 and TNFAIP2 gene polymorphisms with cancer development. The review question is 'what is the link between TNFAIP8 (rs11064, rs1045241, rs1045242, rs3813308), TNFAIP8L1 (rs1060555), and TNFAIP2 (rs710100, rs8126) polymorphisms with cancer risk?'.**
Condition being studied: **Different types of cancer patients and healthy controls were evaluated to detect the cancer risk in the individual case -control studies. We performed a meta analysis of these case control studies to get a pulled outcome risk.**

INPLASY registration number: This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 15 July 2022 and was last updated on 15 July 2022 (registration number INPLASY202270073).

INTRODUCTION

Review question / Objective: **Several case control studies were conducted on the the connection of TNFAIP8 and TNFAIP2 gene polymorphisms with cancer and outcome is not consistent. A meta analysis combining these case control studies may give us a clear scenario of the connection of TNFAIP8 and TNFAIP2 gene polymorphisms with cancer development. The review question is 'what is the link between TNFAIP8 (rs11064, rs1045241, rs1045242, rs3813308), TNFAIP8L1 (rs1060555), and TNFAIP2 (rs710100, rs8126) polymorphisms with cancer risk?'.**

Rationale: **The TNFAIP8 gene family and TNFAIP2 gene are intrinsically related to an extremely increased risk of inducing cancer**

and are overexpressed in a variety of cancer cell types. Using systematic review and meta-analysis, this study aims to determine the association between TNFAIP8 (rs11064, rs1045241, rs1045242, rs3813308), TNFAIP8L1 (rs1060555), and TNFAIP2 (rs710100, rs8126) polymorphisms with cancer risk. Due to the inconsistent previous findings in the small scale case control studies, this meta analysis has been designed to get a concrete connection of the mentioned polymorphisms with cancer development.

Condition being studied: Different types of cancer patients and healthy controls were evaluated to detect the cancer risk in the individual case -control studies. We performed a meta analysis of these case control studies to get a pulled outcome risk.

METHODS

Search strategy: PubMed, Google Scholar, and EMBASE were investigated for research categorization using predetermined key terms. Key phrases include: 'cancer', 'TNFAIP8', 'TNFAIP8L1', 'TNFAIP2', 'TNFAIP2 malignancy and polymorphisms', 'linking of TNFAIP8L1 and cancer development', 'TNFAIP8 polymorphism and carcinogenicity development in heterogeneous ethnicity', 'rs11064', 'rs1045241', 'rs1045242', 'rs3813308'; 'rs1060555', 'rs710100', 'rs8126'. We searched the internet for papers that discussed these topics and illustrated the connection between TNFAIP8, TNFAIP8L1, TNFAIP2 polymorphism, and other cancers. In this meta-analysis, only English-language publications were considered.

Participant or population: Global population collected from published articles.

Intervention: Cases and controls were evaluated with respect to the presence of different genotypes. Association of polymorphism was detected as Odds ratio with 95% confidence interval.Association of polymorphisms have been detected as Odds ratio with 95% confidence interval.

Comparator: Different genotypes and allele frequency of cases were compared with controls.

Study designs to be included: Case control studies with the respective genotyping data of the mentioned SNPs.

Eligibility criteria: We only possessed studies that comprised TNFAIP8 (rs11064, rs1045241, and rs1045242), TNFAIP8L1 (rs1060555) and TNFAIP2 (rs710100, rs8126) gene polymorphisms for cancer and control populations.

Information sources: PubMed, Google Scholar, and EMBASE PubMed.

Main outcome(s): This meta-analysis demonstrates that the rs11064, rs1045241, and rs1045242 polymorphisms of the TNFAIP8 gene and the rs8126 polymorphism of the TNFAIP2 gene are substantially associated with an increased risk of developing cancer in the general population.

Quality assessment / Risk of bias analysis: The Newcastle Ottawa Scale (NOS) standard and the Jadad scale were employed to assess specified observational cohort studies and determine sampling accuracy in controlled trials with randomization (RCTs). Publication bias was calculated with Funnel plots, Egger's and Begg-Mazumdar tests.

Strategy of data synthesis: Dichotomous data will be synthesized to find the pulled odds ratio with a 95% confidence interval. Fixed effect and Random effect models will be utilized depending on heterogeneity.

Subgroup analysis: Different cancer types, ethnicities, genotyping methods and sources of controls.

Sensitivity analysis: A sensitivity analysis will be performed to evaluate the effect of individual studies on the polled outcomes.

Language: No language restriction was provided during literature searching.

Country(ies) involved: Bangladesh.

Keywords: TNFAIP8, TNFAIP8L1, TNFAIP2, polymorphism, Meta-analysis.

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