



Glutathione S-transferase polymorphisms in varicocele patients: a meta-analysis

B. Zhu¹, L. Yin^{2,3} and J.Y. Zhang¹

¹Biochemistry Department, Luohe Medical College, Luohe, Henan Province, China

²College of Life Science, Henan Normal University, Xinxiang, Henan Province, China

³Biochemistry Department, Luohe Medical College, Luohe, Henan Province, China

Corresponding author: B. Zhu

E-mail: baoan_zhu@126.com

Genet. Mol. Res. 14 (4): 18851-18858 (2015)

Received September 7, 2015

Accepted November 15, 2015

Published December 28, 2015

DOI <http://dx.doi.org/10.4238/2015.December.28.34>

ABSTRACT. The glutathione S-transferase (GST) family represents a major group of detoxification and antioxidant enzymes. Studies have shown that high oxidative stress levels are associated with varicocele. The objective of this study was to assess the relationship between *GSTM1* and *GSTT1* null polymorphisms and varicocele using a study group of 497 varicocele patients and 476 control subjects. A systematic literature search (for articles published up to September 2014) utilizing Google Scholar and PubMed was conducted. The chi-square-based Q test and I^2 index were used to evaluate data from retrieved studies. The possible publication bias was evaluated by Begg funnel plot and the Egger test. No statistically significant association was found between *GSTM1* or *GSTT1* null genotypes and varicocele in the overall data analysis. In a subgroup analysis, only the null *GSTM1* genotype was observed at a significantly higher frequency in Caucasian varicocele patients. In the Chinese subgroup, no association

was established between the *GSTM1* and *GSTT1* null genotypes and this condition. More attention should be drawn to oxidative stress-related pathological manifestations for Caucasian varicocele patients.

Key words: *GSTM1*; *GSTT1*; Meta-analysis; Polymorphism; Varicocele