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POLYMORPHISMS OF THE GSTT1 AND GSTM1 GENES IN WOMEN OF CENTRAL SERBIA – ABSENCE OF ASSOCIATION WITH UTERINE MYOMA

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Abstract - Since *glutathione S-transferase* (GST) enzymes are involved in cellular protection, we aimed to determine the distribution of GSTT1 and GSTM1 null genotypes in women in central Serbia in order to assess the risk of development of uterine myoma. The study consisted of 34 clinically diagnosed uterine myoma patients and 35 healthy control women. Analyses of GST polymorphism were carried out by multiplex PCR. Our results showed no significant differences in the GSTT1 and GSTM1 null genotypes between the patients and controls. Using the GSTT1 positive/GSTM1 positive combination as reference, there was no statistically significant risk of uterine myoma with the combination of GSTT1 null and GSTM1 null genotypes. We conclude that polymorphism of both GSTT1 and GSTM1 genes, alone or in combination, did not present the main risk for uterine myoma in women from central Serbia.

Key words: Uterine myoma, GSTT1, GSTM1, polymorphism, central Serbia

INTRODUCTION

Uterine myoma is one of the most common benign tumors, occurring in 20-40% of women in their reproductive years (Duhan, 2011). The precise etiology of this tumor is not clear and some of the possible factors that promote the development and the growth of myoma, as well possible risk factors, have been reviewed by Parker (2007).

In order to better understand the molecular pathway of diseases, polymorphisms of the enzymes involved in cellular protection have long been evaluated. So far, the greatest interest has been focused on GST enzymes, a large family of xenobiotic-detoxifying phase II enzymes, which take part in the conjugation of endogenous and exogenous electrophiles and play an important role in the detoxification of several toxic and carcinogenic substances (Clapper, 2000). Deletion variants or null alleles exist for both GSTT1 and GSTM1 genes which are presented biochemically as a failure to express protein (McIlvan et al., 2006). Numerous studies have investigated the role of GST polymorphisms in the increased risk for predisposition to various cancers, including bladder (Salagovic et al., 1999), oral (Zhang et al., 2011), uterine cervical (Wang et al., 2011), gastric (Chen et al., 2010), prostate (Srivastava et al., 2005), endometrial (Karageorgi et al., 2011) and other diseases such as type 2 diabetes mellitus (Bid et al., 2010), neurological diseases (Stroombergen and Waring, 1999) and male infertility (Safarinejad et al., 2010).