gynaecological cancers

**IMPACT OF XRCC1 ARG399GLN POLYMORPHISM ON OVARIAN CANCER RISK IN SERBIAN WOMEN**

E.J. Malisic, I. Boljevic, A. Krivokuca, R. Jankovic
Department of Experimental Oncology, Institute for Oncology and Radiology of Serbia, Belgrade, SERBIA

**Aim:** The proteins involved in DNA repair system play a crucial role in the protection against malignant transformation. It has been hypothesized that polymorphic variations of DNA repair genes may contribute to functional deficiencies in DNA repair processes and increase susceptibility to cancer. In this manner, 399Gln variant of Arg399Gln polymorphism in X-ray repair cross-complementing group (XRCC1) gene is associated with significant reduction of DNA base excision and single-strand break repair capacity. Although the role of this polymorphism on development of some types of cancer was indicated, such data for ovarian cancer are missing. Consequently, we aimed to investigate impact of XRCC1 Arg399Gln polymorphism on ovarian cancer risk in Serbian women.

**Methods:** The case-control study included 50 fresh frozen ovarian cancers samples and 78 cervical swabs of gynecologically healthy age-matched controls. DNA was extracted by salting-out procedure. XRCC1 Arg399Gln polymorphism was determined by polymerase chain reaction-restriction fragment length polymorphism (PCR-RFLP). The allele- and genotypic-specific risks were estimated as odds ratios (ORs) with associated 95% confidence intervals (CIs).

**Results:** The distribution of genotypes for Arg399Gln XRCC1 polymorphism in ovarian cancers vs. controls was: 58.0% vs. 38.5% for Arg/Arg, 32.0% vs. 26.9% for Arg/Gln, and 10.0% vs. 34.6% for Gln/Gln genotype, respectively. We found that XRCC1 Arg allele is associated with ovarian cancer risk (OR= 2.635 for Arg vs. Gln with 95% CI of 1.526 to 4.550). The Arg allele exerts its effect on increased risk for ovarian cancer development in dominant model (Arg/Arg plus Arg/Gln vs. Gln/Gln) with OR (and 95 % CI) of 4.765 (1.892 to 13.414) as well as in recessive model (Arg/Arg vs. Arg/Gln plus Gln/Gln) with OR (and 95 % CI) of 2.210 (1.072 to 4.555).

**Conclusions:** The present results suggest that the Arg399Gln polymorphism of the XRCC1 gene could be a biomarker of susceptibility for ovarian cancer development in Serbian women. Further larger case-control study is needed to confirm our findings.

**Disclosure:** All authors have declared no conflicts of interest.

© European Society for Medical Oncology 2014, Published by Oxford University Press on behalf of the European Society for Medical Oncology. All rights reserved. For permissions, please email: journals.permissions@oup.com.