THE STUDY OF XPD GENE POLYMORPHISM IN WORKERS OF ASBESTOS-CEMENT PLANTS IN UKRAINE.

T.Andrushchenko, S. Goncharov, V.Dosenko.

1State Institution «Kundiiev Institute of occupational health of the National Academy of medical sciences of Ukraine», Ukraine
2Bogomoletz Institute of Physiology National Academy of sciences of Ukraine, Ukraine.

According to WHO conclusion, asbestos belongs to the carcinogens of the 1 danger group; therefore, its use since 2005 is prohibited in more than 60 countries across the world. To date, associative studies of genetic polymorphisms related to asbestos caused diseases of the bronchopulmonary system have been carried out, among them polymorphisms in genes: HLA-DRB1, TFN, GSTM1, GSTT1, CYSP1A1, MMP-9, TIMP-2[1]. Many polymorphisms of the DNA repair system genes, predominantly BER, were proven to be associated with lung cancer. Aim of the research was to study correlation between XPD gene BER polymorphisms and asbestos-caused diseases of the bronchopulmonary system.

Materials and methods. 89 workers from asbestos plants were surveyed, the mean age was 43.18 ± 5.8 years, and the average length of asbestos-related service was 15.45 ± 4.6 years. The 1st study group (n = 46) - workers with bronchopulmonary pathology, the 2nd control group (n = 43) - healthy workers. The DNA was isolated from peripheral blood, using the real time PCR, genotypes of the gene were determined: XPD (rs 13181).

Results. The XPD gene polymorphism is most commonly found in the A35931C exon 23 position of the XPD gene (Lys751Gln) in the 751 codon. The carriers of the minor CC genotype of XPD gen have a reduced DNA repairation activity, this leads to a defective removal of damage[2]. Studies showed that in group 1 the frequency of the AA genotype was 39,1%, AC – 41,3%, CC – 19,6%; in the control group: the AA genotype was 23,3%, AC – 62,8%, CC – 13,9%. Statistical
analysis revealed that in control group, the heterozygous genotype of AC (Lys/Gln) was much more frequent than in the group 1. Thus, the protective effect of the XPD gene AC genotype in the development of bronchopulmonary diseases was revealed ($x^2 = 4.06, p = 0.04, OR-0.42, CI 0.16-1.06$). In the future, we are planning to study rs799793 polymorphisms of the XPD gene.

References.


Key words: bronchopulmonary disease, SNP, XPD, asbestos.

Accepted for printing on 27 Oct 2017