conferenceseries.com

J Carcinog Mutagen 2018, Volume 9
DOI: 10.4172/2157-2518-C1-003

Biochemical and XRCC1 gene polymorphisms as risk factor for lung cancer among Jordanian patients

Manar Atoum and Bilal Rabah Qasim Abulmawjood
Hashemite University, Jordan

Lung cancer is the leading cause of cancer-related deaths worldwide. Malondialdehyde (MDA) is one of reactive species that plays a role in increasing DNA damage. Superoxide Dismutase (SOD) is an important antioxidant enzyme that protect against ROS injury in lung. X-Ray Cross Complement Gene (XRCC1) is a DNA repairing gene that has an important role in repairing DNA alterations. Arg399Gln polymorphism in XRCC1 may affect the risk of lung cancer. So, the aim of this study is to determine the association between MDA, Cu-Zn superoxide dismutase serum level and Arg399Gln polymorphism among Jordanian lung cancer patients. This study conducted in Al-Basheer hospital between (2015 and 2016) and enrolled 35 lung cancer patients and forty healthy subjects. MDA serum level was measured using colorimetric assay and the serum level of Cu-Zn SOD was determined using ELISA assay. DNA samples were amplified by PCR, genotyped using MspI restriction enzyme digestion and electrophoresed on agarose gel. MDA serum level was significantly higher among lung cancer patients (3.34±0.6 nmol/mL) compared to control (2.72±0.49 nmol/ml) and associated with around ten folds increased risk for lung cancer (OR 2.54). Cu-Zn SOD serum level was significantly lower in lung cancer patients (50.03±9.6 ng/ml) compared to control (67.26±13.2 ng/ml) and associated with more than three folds increased risk for lung cancer (OR 3.85). Significant differences were found in genotypic and allelic distribution of XRCC1 gene Arg399Gln polymorphism between lung cancer patients and control. GA, AA genotypes and A allele were more frequent in lung cancer patients (52.8%, 15.1%, 41.5%) compared to control (38.8%, 2%, 21.4%) and significantly associated with increase lung cancer risk (GA; OR 2.51), (AA; OR 13.65) and (A; OR 2.60). No significant association was found between serum levels of MDA, Cu-Zn SOD and XRCC1 Arg399Gln polymorphism among lung cancer patients and control group. It can be concluded that high serum levels of MDA and low serum levels of Cu-Zn SOD are associated with increased lung cancer risk among Jordanian lung cancer patients. AA, GA genotypes and A allele of the XRCC1 Arg399Gln are also associated with increased lung cancer risk.

manar@hu.edu.jo