Expression and genotype of manganese superoxide dismut ase in lung cancer cells of smoker patients

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Abstrak

Although the most common cause of lung cancer is long-term exposure to tobacco smoke, the role of genetic factor for the cell defense mechanism, such as MnSOD, should also be considered. This study aims to analyze the expression and genotype of MnSOD in lung cancer cells of smoker patients. Samples were normal and lung cancer cells of patients operated in Persahabatan Hospital from May to December 2008, as well as lung cancer cells extracted from FFPE collection. Leukocyte cells of healthy smoker subjects were used as controls. The MnSOD mRNA expression was analyzed using Real Time RT-PCR and the specific activity using xantin oxidase inhibition assay. The genotyping was performed using PCR-RFLP.

The result showed that the MnSOD specific activity in lung cancer of smoker patients is higher than in leukocyte cells of smoker controls. Compared to the expression of MnSOD in the normal lung cells of patients, in the lung cancer cells the level of MnSOD mRNA was lower, whereas its specific activity was higher (1.988 times). The samples from lung cancer patients have a Val/Val genotype frequency of 100%. In this study, we could conclude that MnSOD expression is altered in lung cancer cells.