



Leukocyte Telomere Length in Heavy Tobacco and Marijuana Egyptian Smokers

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Abstract : Lifestyle factors such as smoking, obesity, physical inactivity and drug addiction could be related to short telomere length. Telomere shortening reflects the balance between cytotoxic stressors and antioxidant defense mechanisms. This study aimed to determine leukocyte telomere length and oxidative stress in Egyptian Tobacco and Marijuana Smokers. The study was carried out on 90 male persons divided into three groups. Group I was composed of 30 non smokers, group II comprised 30 tobacco smokers and group III included 30 tobacco and marijuana smokers. For all participants, Leukocyte Telomere Length (LTL) malondialdehyde (MDA), total antioxidant capacity (TAC), urinary 8-hydroxydeoxyguanosine (8-OHdG), Cotinine and Delta-9-tetrahydrocannabinol (THC) were estimated. There was a highly statistically significant difference between the three groups regarding the LTL. MDA and urinary 8HdG levels were significantly increased in groups II and III compared to the control group. On the other hand leukocyte telomere length and the level of total antioxidant capacity were significantly decreased in the two groups as compared to the control one. There were significantly negative correlations between the LTL and levels of MDA and urinary 8HdG in group II and III as compared control group. In conclusion telomere length erosion was greatly accelerated by tobacco smoking and marijuana addiction. Oxidative stress due to heavy smoking of either tobacco or marijuana plays a key role in DNA damage and shortening of telomere length.

Keywords: leukocyte telomere length, cotinine, Delta-9-tetrahydrocannabinol, oxidative stress.

Heba Mahdy-Abdallah *et al* /International Journal of ChemTech Research, 2016,9(4),pp 501-508.
