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Effect of chronic use of antidepressants (citalopram) on the oxidative DNA damage in human

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Objectives: Depression and generalized anxiety disorder (GAD) have a relationship with increased oxidative stress. DNA damage by oxidation factors is an important agent of the aging process in psychiatric disorders. Due to a dearth of human study and high inconsistency in studies in the effect of depression and anxiety and its treatment on the DNA damage, this study was designed to investigate the effects of psychiatric disorder (depression and anxiety) and SSRIs antidepressants on the oxidative DNA damage.

Methods: Thirty patients with depression and anxiety disorder referring to the department of Abn-Sina hospital of Mashhad participated in this study. After diagnosis by psychiatrist, the patients took citalopram (20-40 mg/day) for 12 weeks. Blood samples were collected from 20 healthy volunteer as healthy control and all patients before and after treatment by citalopram. Then, DNA damage was measured by comet assay.

Results: We found significant different DNA damage between healthy control and patients with depression and anxiety. Also, DNA damage was significantly decreased after treatment ($p<0.001$). In this study, depression and anxiety score (Hamilton Depression Rating Scale and Hamilton Anxiety Rating Scale) was decreased significantly after treatment by citalopram ($p<0.01$).

Conclusions: Psychiatric disorders like depression and anxiety increase DNA damage by an increase in oxidative stress factors and these effects may be decreased by treatment with antidepressants.