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# Assessment the effect of metformin and pioglitazone on oxidative phenomenon in type 2 diabetes patients

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**Introduction:** Imbalance between production and destruction of reactive molecules leads to oxidative stress (OS). OS can cause impaired glucose metabolism which leads to diabetes mellitus and its complications such as retinopathy, nephropathy and cardiovascular diseases. OS is also believed to become excessive by production of high amounts of OH free radicals resulting from hyperglycemia on the one hand and reduction of activity of anti oxidant enzymes on the other hand. New efforts have focused on inhibition or reduction of free radicals generation, as a pathway, to diminish OS level in the body. One of these efforts is using metformin with a moderately role of OS and pioglitazone with an antioxidative-antiinflammatory role in type 2 diabetes.

**Methods:** Metformin and pioglitazone were daily prescribed to, respectively, 50 and 30 patients with type 2 diabetes. 49 recent patients didn't receive any medication but only provided with recommendations for lifestyle modification. They were suggested about exercise and dietary activity. At first time and after three months, advanced glycation end products(AGEs), advanced oxidation protein products(AOPP), paraoxonase(PON), lecithin-cholesterol asyltransferase(LCAT) and lipoprotein lipase(LPL) of serum and also ferritin reducing ability of plasma(FRAP) were measured.

**Results:** Both of metformin and pioglitazone reduced the serum quantity of AGEs($p = 0.140$) and AOPP($p = 0.688$) and also, increased the serum quantity of PON ($p = 0.273$). Measure of FRAP ($p = 0.012$) was increased by metformin. Pioglitazone moderated OS and neared the serum levels of LCAT (0.037) and LPL ($P = 0.001$) to normal values better than metformin.

**Conclusion:** The rate of OS and antioxidant capacity parameters neared to natural level, after three months drug therapy including metformin and pioglitazone.

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