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# 8-oxo-2'-deoxyguanosine이 고지방식이로 인한 신손상에 미치는 효과

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# Exogenous 8-oxo-2'-deoxyguanosine Protects High Fat-induced Kidney Injury in Mice

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**Aim:** Chronic kidney disease (CKD) becomes epidemic worldwide and obesity is recognized as an independent risk factor for the development and progression of CKD. Oxidative stress and chronic inflammation play important roles in obesity-induced kidney injury. 8-oxo-2'-deoxyguanosine (8-oxo-dG), a marker of oxidative stress, has been recently rediscovered to possess anti-oxidant and anti-inflammatory effect through Rac1 inhibition. We, thus, hypothesized that 8-oxo-dG might prevent obesity-induced kidney injury.

**Method:** Ten-week-old C57BL/6J mice were divided into 3 groups: normal fat diet (ND, 13% of total calories from fat), high fat diet (HF, 60% of total calories from fat), and high fat diet treated with 8-oxo-dG (30 mg/kg/day, p.o.).

**Result:** High fat-diet for 10 weeks induced kidney injury including albuminuria, glomerular hypertrophy, increased fractional mesangial area with renal upregulation of transforming growth factor beta-1, collagen1α and fibronectin. Renal macrophage infiltration and inflammation (vascular cell adhesion molecule-1, intercellular adhesion molecule-1, monocyte chemoattractant protein-1, F4/80 mRNA expression) were also increased in HF-fed mice. 8-oxo-dG effectively prevented these obesity-induced kidney injury observed. Increased oxidative stress (lipid peroxidation product, Nox 1, 2, and 3 mRNA expression) in HF-fed mice were also inhibited by 8-oxo-dG, suggesting antioxidant effect of 8-oxo-dG.

**Conclusion:** These data suggest that 8-oxo-dG may become a new therapeutic agent targeting obesity-induced kidney injury.

**Key Words:** 만성신질환, 비만, 활성산소
CKD, Obesity, 8-oxo-dG