KSN 2016 Abstract Submission

Clinical & Experimental CKD & Genetics

KSN2016ABS-1468

Renoprotective Effect of Incretin Based Therapies in Aging Kindey

Tae Hyun Ban*[1], In-Ae Jang[1], Eun Nim Kim[1], Hye Eun Yoon[1], Byung Ha Chung[1], Cheol Whee Park[1], Chul Woo Yang[1], Yong-Soo Kim[1], Yoon Sik Chang[1], Bum Soon Choi[1]

[1]Division of Nephrology, Department of Internal Medicine, The Catholic University of Korea, College of Medicine, Seoul, Korea, Republic Of

Background: The incretin-based agents such as dipeptidyl peptidase IV (DPP-IV) inhibitor and glucagon-like peptide-1 (GLP-1) agonist was associated with diverse protective effect including renoprotective effect except lowering glucose. Aging kidney was characterized by decreased glomerular filtration rate, impaired electrolyte balance, decreased plasma renin activity and histological changes such as glomerulosclerosis and tubular atrophy. We investigated the renal function, albuminuria, the concentration and activity of incretin hormone in serum and urine, and expression of incretin hormone in renal tissue with aging in mice model.

Methods: C57BL/6 mice were divided into three groups; 2 months-old (N=8), 12 months-old (N=8), and 24 months-old (N=8). Activities, concentrations and expressions of incretin hormone in serum, urine, and renal tissue were analyzed.

Results: According to aging, creatinine clearance and albuminuria were increased ($p<0.05$, respectively) (Fig. 1). DPP-IV concentrations in serum and DPP-IV activities in renal tissue were gradually increased ($p<0.001$ and $p<0.05$, respectively) (Fig. 2 and Fig.3). In analysis of renal tissue, the fractional mesangial area in glomerulus and tubulointerstitial fibrosis were significantly risen with aging ($p<0.01$, respectively). GLP-1 receptor and DPP-IV protein levels in renal tissue were significantly increased with aging in western blot ($p<0.001$ and $0<0.05$, respectively).

Conclusion: It is suggested that incretin based treatment is a possible strategy for preventing an aging process in the kidney.

Figures:

Fig 1. a) Albuminuria, b) Creatinine Clearance

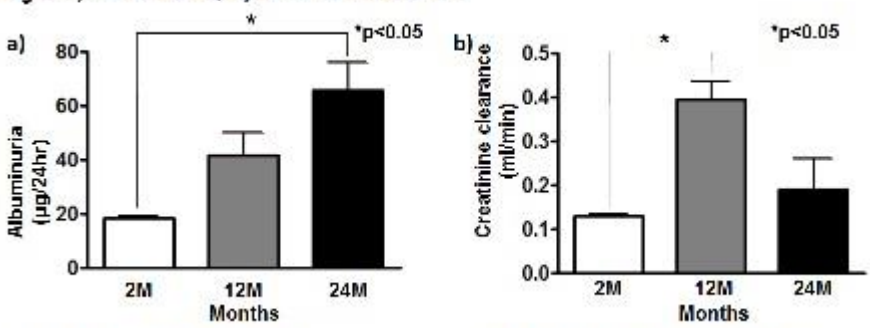


Fig 2. DPP-4 Levels in Serum

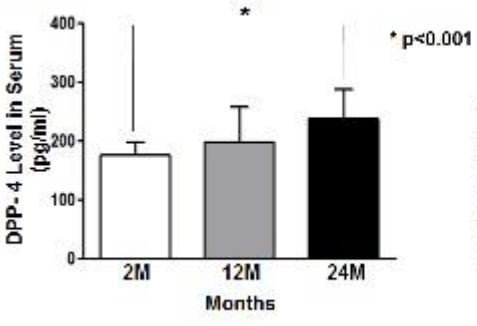
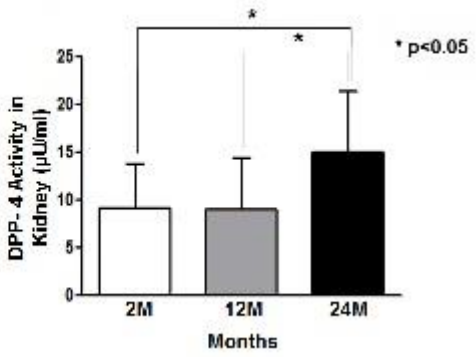


Fig 3. DPP-4 Activity in Kidney



Keywords: aging, Dipeptidyl peptidase-IV, Glucagon-like peptide-1, incretin