Abstract Type: Poster
Presentation No.: PNO 010

Association between plasma growth differentiation factor-15 levels and renal function in the elderly: Korean Frailty and Aging Cohort Study

Hyung Seok Ihm1, Chang Won Won2, J in Sug Kim3, Ji Yung Lee3, Su Woong Jung3, Tae Won Lee3, Chun Gyoo Ihm3, Kyung Hwan Jeong3

1Department of Internal Medicine-Nephrology, Kyung Hee University School of Medicine, Korea, Republic of
2Department of Family Medicine, Kyung Hee University School of Medicine, Korea, Republic of

Objectives:
Growth differentiation factor-15 (GDF-15) has been reported to increase in response to tissue damage, and has been recently emerged as a useful biomarker in various diseases. Although accumulating evidence supports the prognostic value of the GDF-15 in renal impairment, only a few studies have analyzed it in the elderly. Thus, we conducted a cross-sectional study to investigate the association between plasma GDF-15 levels and renal function in the elderly.

Methods:
The present study was based on the baseline data of Korean Frailty and Aging Cohort Study (KFACS), the nationwide cohort study which began in 2016. Of the 1,559 participants in the first year, 443 participants with available plasma GDF-15 data were enrolled in this study. We investigated the association of plasma GDF-15 levels with clinical parameters. The participants were then stratified into four groups according to their estimated glomerular filtration rate (eGFR) to evaluate the association between renal function and GDF-15 levels.

Results:
In a simple regression analysis, the level of plasma GDF-15 was significantly correlated with age, eGFR, hemoglobin, serum protein, glucose, calcium and phosphorus levels, and hemoglobin A1c (HbA1c). The level of plasma GDF-15 was negatively correlated with the eGFR ($r = -0.383$, $r^2 = 0.147$, $p < 0.001$). In the multiple linear regression analysis, the GDF-15 level showed a significant correlation with eGFR, hemoglobin, and HbA1c ($p < 0.0001$, $p < 0.001$, and $p = 0.020$, respectively). When the participants were stratified into four groups according to eGFR, the higher quintiles showed lower levels of GDF-15 ($1163.74 \pm 570.85$ pg/ml, $1436.59 \pm 958.10$ pg/ml, $1626.26 \pm 872.18$ pg/ml, and $1995.1 \pm 979.15$ pg/ml).

Conclusions:
Our results suggest that plasma GDF-15 level could be a useful biomarker for renal impairment in the elderly. Further large and prospective studies with long duration are needed.