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복막 투석 환자의 대사 증후군 예측에 대한 시상 복부 직경의 우월성

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Sagittal Abdominal Diameter is a Stronger Predictor of Metabolic Syndrome than Anthropometric Indices in Peritoneal Dialysis Patients

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Background: Visceral fat is a key factor in the development of cardiovascular disease and insulin resistance. Recent studies showed that sagittal abdominal diameter (SAD) was significantly associated with metabolic syndrome in general population. However, the association between SAD and metabolic syndrome has never been elucidated in patients with peritoneal dialysis (PD).

Aims: The aim was to investigate whether SAD was associated with metabolic syndrome in PD patients. In addition, we evaluated whether SAD predicted metabolic syndrome better than anthropometric indices in this patients.

Methods: We undertook a cross-sectional study in 90 prevalent PD patients between February 2010 and July 2010. We assessed SAD using lateral abdominal radiograph in supine position with dialysate empty. SAD was defined as the anteroposterior diameter of the abdomen at the L4-L5 level on the radiograph. In addition, anthropometry, blood pressure, fasting glucose, insulin, and lipid profiles were measured. Metabolic syndrome was defined in accordance with the modified National Cholesterol Education Program (Adult Treatment Panel III) criteria. According to the median value of SAD (25.4 cm), patients were dichotomized into higher SAD (HS) and lower SAD (LS) groups.

Results: Compared with the LS group, the mean age, body mass index (BMI), waist circumference (WC), waist-to-hip ratio (WHR), and homeostasis model assessment-insulin resistance index were significantly higher in the HS group. In addition, metabolic syndrome was more observed in this group [20 of 45 (44.4%) vs. 7 of 45 (15.5%), p=0.005]. Univariate analysis showed that SAD, BMI, WC, and WHR were significantly correlated with metabolic syndrome. In a multivariate logistic regression analysis adjusted for confounding factors, SAD was an independent predictor of metabolic syndrome (odds ratio=1.024, 95% confidence interval: 1.003-1.045, p=0.023). Among SAD and anthropometric indices, SAD provided the highest predictive value for metabolic syndrome [SAD; area under the receiver operating characteristic curve (AUC) 0.732, p<0.001, BMI; AUC 0.724, p<0.001, WC; AUC 0.719, p<0.001, WHR; AUC 0.683, p=0.006].

Conclusion: The present study showed SAD was more predictive for metabolic syndrome in PD patients than anthropometric indices. Therefore, SAD measured by simple abdominal radiograph could be useful to assess the risk of metabolic syndrome in patients with PD.

Key Words: 시상 복부 직경, 대사 증후군, 투석
Sagittal abdominal diameter, Metabolic syndrome, Dialysis