

혈액투석환자에서 관상동맥질환의 예측인자로서 족부, 수부, 골반부 및 요추부 측면 단순방사선 사진상 혈관석회화 점수의 비교

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Comparison of Vascular Calcification Scores in the Feet, Hands, Pelvis and Lateral Lumbar Spine of the Plain Radiographs as a Predictor of Coronary Artery Disease in Hemodialysis Patients

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Introduction : Vascular calcification (VC) scores on simple plain radiographic films are known to be associated with coronary artery disease (CAD) and mortality. However, there is no report about the correlation between each VC scores on the plain radiograph of different sites and it is unclear to check every plain radiograph as screening. The present study was designed to find any correlation among VC scores of hands and pelvis, feet and lateral lumbar spine on the plain radiographs. In addition, we aimed to analyze the usefulness of checking all the VC scores of the plain radiographs for the assessment of pre-existing CAD.

Methods : We recruited a total of 61 hemodialysis (HD) patients (male : 23 patients, diabetes : 32 patients) from Dong-A University dialysis center. We checked plain radiographic films of the feet, hands, pelvis and lateral lumbar spine and evaluated VC scores with previously reported methods. We defined CAD based on myocardial SPECT scan, echocardiography or coronary angiography

Results : The mean age of the patients was 57.1 ± 13.0 years and the mean HD duration was 46.6 ± 6.1 months (mean \pm S.E.). Positive associations were found between CAD ($r=0.496$, $p<0.001$), VC scores of hands and pelvis ($r=0.586$, $p<0.001$), VC scores of hands ($r=0.472$, $p<0.001$), VC scores of pelvis ($r=0.517$, $p<0.001$) and scores of abdominal aortic calcification (AAC). Positive associations were found between CAD ($r=0.276$, $p=0.032$), scores of AAC ($r=0.260$, $p=0.046$), VC scores of hands and pelvis ($r=0.680$, $p<0.001$), VC scores of hands ($r=0.586$, $p<0.001$), VC scores of pelvis ($r=0.658$, $p<0.001$) and VC scores of feet. In approximately 30%, patients who had CAD could be missed as not having CAD by single VC scoring method. Patients who showed any one finding among the abdominal aortic calcification scores >4 (total of 24), VC scores of pelvis and hands >2 (total of 8) or arterial media calcification of feet on the plain radiographs had a high sensitivity (94.1%) and a high negative predictive value (96.3%) for the presence of CAD.

Conclusion : Every VC score was highly correlated with each other. Combinations of the VC scores on the plain radiographic films of four different sites (feet, hands, pelvis and lateral lumbar spine) are useful screening tests for the presence of CAD in HD patients.

Key Words : 혈액투석, 혈관석회화, 관상동맥질환

Hemodialysis, Vascular calcification, Coronary artery disease