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Depression in Pre-dialytic Chronic Kidney Disease Patients : Comparison of Depressed and Non-Depressed Patients using Tc-99m ECD Brain SPECT

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Purpose : The purpose of this study was to evaluate the prevalence of depression, to localize and quantify depression-related lesions in pre-dialytic chronic kidney disease (CKD) patients.

Methods : Nineteen patients with stage 4 through 5 CKD and fifteen healthy volunteers were analyzed by depression assessment and statistical parametric mapping (SPM) analysis of Tc-99m ECD brain SPECT. Depression assessment was done by Beck Depression Inventory (BDI) and Hamilton Depression Rating Scale (HDRS).

Results : Ten patients (53%) had depression by BDI and seven patients (37%) by HRDS. Ten hypoperfusion areas were detected in comparison with healthy normal control using t-statistics. The largest clusters were areas including Brodmann area 19, precentral gyrus, and postcentral gyrus of left hemisphere. In voxel-wise comparison, hypoperfusion areas were right precentral gyrus, left cerebellar posterior lobe, left Brodmann area 19, and both cingulate gyrus. The common areas were left Brodmann area 19, right precentral gyrus, and left cerebellar posterior lobe. Depressed CKD patients were not characterized peculiar hypoperfusion area in comparison with non-depressed CKD patients. In addition, no correlation was found between hypoperfusion areas and HDRS scores of CKD patients. Also, hypoperfusion areas in CKD patients were not similar to that of major depression excluding cingulate gyrus.

Conclusion : The prevalence of depression in pre-dialytic CKD patients was relatively high and cerebral hypoperfusion is not similar to that of major depression. Thus, a different approach should be placed for the pre-dialytic CKD patients in the assessment of mood disorder, mainly depression.