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Abdominal aortic calcification progression and associated mortality in patients with end-stage renal disease on hemodialysis

Moon-Jae Kim, Boram Cha, Sun Duk Hwang, Joon Ho Song and Seung Woo Lee
Inha University Hospital Kidney Center, Korea

Objective: Posterior reversible encephalopathy syndrome (PRES) is characterized by a clinical and radiological entity with rapid onset of seizures, headache, altered consciousness and visual disturbance with neuroimaging findings of reversible vasogenic subcortical edema. It is postulated to have a pathogenesis similar to hypertensive encephalopathy, although correlation with elevated blood pressure (BP) has not been demonstrated in chronic kidney disease (CKD).

Design & Methods: Our goal was to describe the clinical features, triggering factors, neuro-imaging findings in a cohort with CKD. We retrospectively analyzed the medical records of 22 patients with the diagnosis of PRES between January 2005 and December 2016 at the Inha University Hospital, Korea.

Results: There were 22 PRES patients with CKD. The most common co-morbid conditions is on maintenance dialysis in 63% (14/22). The most common clinical presentation was generalized tonic-clonic seizures. The most common identified trigger of PRES was on-going uncontrolled hypertension (>200/120 mmHg) in 86% (19/22) on seizure; 77% (17/22) patients had estimated glomerular filtration rate under 15ml/min/1.73m²; 50% (9/18) had left ventricular hypertrophy. Two of the 22 patients had recurrent PRES episodes, three episodes each. Atypical brain magnetic resonance imaging (MRI) findings were more prevalent in the imaged cases (62% vs 25%, $P < 0.05$). All the brain computerized tomography (CT) scans were normal, despite the positive MRI findings in seven cases when both types of imaging was used. All the episodes had total clinical resolution with anticonvulsants and rapid control of BP with addition of intravenous antihypertensive drugs.

Conclusions: Despite the diverse initial trigger factors of PRES, uncontrolled hypertension seems to be the common pathogenic pathway for PRES in CKD. For prevention of PRES in CKD patients, more intensive lowering of elevated BP should be initiated eagerly and BP should be well-maintained under control.

nhkimj@inha.ac.kr