DESTRUCTIVE SPONDYLOARTHROPATHY OF CERVICAL SPINE IN HEMODIALYZED PATIENTS OVER TEN YEARS

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INTRODUCTION: Destructive spondyloarthropathy (DSA) in long-term hemodialysis patients was first described by Kuntz in 1984. Though DSA has recently been recognized in long-term hemodialysis patients, there is little knowledge of the epidemiology. This cross-sectional study was undertaken to provide some clarification of the prevalence of DSA.

METHODS: Eighty-six patients who were undergoing maintenance hemodialysis over 10 years (an average of 17.2 years; range 10.8 - 26.3) entered into this study. They consisted of 41 males and 45 females, the mean age being 56.5 years (range 35-72). Lateral plain radiographs of the cervical spine was obtained in neutral position in all patients. The diagnosis of DSA was based on the following radiographic signs: severe narrowing of the intervertebral disc, erosions and geodes of the adjacent vertebral plates, absence of significant osteophytosis. CT and MRI study were performed in 79 patients to evaluate cyst formation and soft tissue mass posterior to the odontoid process. The patients were divided into three groups according to the duration of hemodialysis: Group A (29 patients); 10< duration<15 years, Group B (37 patients); 15<duration<20 years, and Group C (20 patients); duration>20 years. The prevalence of these radiographic findings and neurological status were compared in the three groups.

RESULTS: 1) Thirty-four patients (40%) showed DSA changes in plain radiographs. The prevalence was 32% in group A, 42% in group B and 53% in group C (Fig. 1). 2) Listhesis at DSA segment was observed in 7 patients. Other 3 patients revealed spontaneous fusion at DSA segments. The duration of hemodialysis for these patients was longer than that for the other patients (Fig. 2). 3) Vertebral Rim erosion (VRE) without DSA was another characteristic finding. The prevalence was 25% in group A, 11% in group B and 10% in group C (Fig. 1). 4) Twenty-two patients(28%) showed cyst formation in facet and end plate. The prevalence was 22% in group A, 21% in group B and 47% in group C. 5) Nine patients showed cystic change in the odontoid process. 6) Forty-seven patients(59 %) showed soft tissue mass posterior to the odontoid process in MRI. The prevalence was 64% in group A, 54% in group B and 100% in group C. 5) Radiculopathy and/or myelopathy were seen in nineteen patients. Patients with listhesis or spontaneous fusion frequently manifested neurological symptoms and had longer duration of hemodyalysis (Fig. 2). Three
patients received surgery because of the progression of myelopathy. One patient needed C1/2 fusion for atlanta-axial subluxation secondary to pathological fracture of C2.

DISCUSSION AND CONCLUSION: This study revealed that all sort of structural changes in vertebrae, facet and soft tissue occurred in the patients of long-term hemodialysis. These changes tended to progress with the duration of hemodialysis. Cyst formation in the odontoid process is a new pathology which cause pathological fracture and atlanta-axial subluxation. Spine surgeons must be aware of high prevalence of these structural changes which lead to neurological catastrophe.