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Clinicopathologic Association in Human Diabetic Kidney Disease -Analysis of Archive Kidney Tissue after Nephrectomy

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Objectives: Because kidney biopsy is mostly carried out in patients with atypical presentation in the context of diabetic nephropathy (DN), we are difficult to prove the course of disease. This study was conducted to determine the association between clinical data and pathologic changes of DN using remnant kidney tissue stored after total nephrectomy in patients with renal tumors.

Methods: A total of 17 patients were enrolled for pathologic analysis according to pathologic classification of DN (Renal Pathology Society Classification, 2010). Because electron microscopic results were not able to obtain, we expressed glomerular classification as "unclassified (UC)" if no glomerular change is present. Severe interstitial lesion (arteriolar hyalinosis and arteriosclerosis) and vascular lesion (IFTA and inflammation) was defined as summed score more than 3, respectively.

Results: The median age and diabetes vintage of enrolled patients (male, 13/17, 76.4%) were 65.0 (56.5-76.0) years old and 2.0 (0.5-10.0) years. HbA1c was 7.4 (6.9-8.4) %. Glomerular change was noted in five patients (29.4%) and severe interstitial and vascular changes (summed score > 3) were in six (35%) and six (35%), respectively. Diabetes vintage is longer in group with glomerular change or severe vascular or interstitial change compared with their counterpart. Estimated GFR is lower in group with glomerular change compared with its counterpart, not in group with vascular or interstitial change [53.0 (38.9-72.5) vs. 76.5 (69.6-105.3), $p < 0.05$]. 75% (3/4) of patients have severe arteriosclerosis (score >2) and 25% (1/4) have interstitial fibrosis (score <2) in group with eGFR ≥ 60 ml/min/1.73m² and no proteinuria. However, there is no glomerular change in these patients.

Conclusions: Diabetic nephropathy has a wide variety of pathologic changes and interstitial change may precede the glomerular change in clinically early period of diabetic nephropathy. Further study is needed to define the course of diabetic nephropathy.