CHANGES IN GLOMERULAR EXTRACELLULAR MATRICES IN GLOMERULONEPHRITIS.

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To clarify the mechanism of progression of glomerulonephritis, we investigated the changes in extracellular components of matrices in primary glomerulonephritis immunohistologically.

MATERIALS AND METHODS: Indirect immunofluorescent staining with polyclonal antibodies to heparan sulfate proteoglycan (HS-PG), laminin, type IV collagen and fibronectin were carried out on the following types of renal specimens from 61 patients; minimal change nephrotic syndrome (MCNS), membranous glomerulonephritis (MN), membranoproliferative glomerulonephritis (MPGN), IgA nephropathy and dense deposit disease (DDD). Fluorescent intensity and distribution were observed. In MN, double staining was performed in which the relationships between IgG deposits and extracellular matrices were observed.

RESULTS AND DISCUSSION: In MCNS, no remarkable changes were observed. In MPGN and IgA nephropathy, HS-PG and laminin decreased in sclerotic regions, however, type IV collagen and fibronectin increased (Fig.1B). In some IgA nephropathy, there was a decrease in type IV collagen in proliferated regions. In MN, HS-PG, laminin and type IV collagen were detected along the capillary walls with spike or circular shape distribution (Fig.2B). Their changes were more prominent in HS-PG and laminin. These components were detected around or between the immunoglobulin deposits by double staining (Fig.3A,3B). In DDD, there was a decrease in HS-PG in the capillary walls. These results suggest that in glomerulonephritis whose main histological changes are proliferation of mesangium, fibronectin increase in proliferated regions, HS-PG and laminin decrease. The changes in type IV collagen may vary with the type of glomerulonephritis or the severity of the proliferation. In MN, so called newly synthesized basement membrane
EXTRACELLULAR MATRICES IN GLOMERULONEPHRITIS seemed to contain more HS-PG and laminin. This suggests that non collagenous components of GBM such as HS-PG and laminin may play an important role in repairing the GBM.

Fig. 1 Indirect immunofluorescent staining for type IV collagen. A: Normal control, B: MPGN. (X200)

Fig. 2 Indirect immunofluorescent staining for HS-PG. A: Normal control (X200), B: MN, Spike or circle shape staining is visible. (X400)

Fig. 3 Double staining of MN. A: IgG, B: HS-PG. (X400)

REFERENCE