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SHORT REPORT

Profile of immunoglobulin deposits detected by immunoperoxidase method in patients with idiopathic glomerulonephritis

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Glomerulonephritis (GN) refers to inflammation of glomeruli. Glomerulonephritis can be considered as primary when the major problem appears to start in the glomerulus, and secondary when involvement of glomeruli is part of a systemic disease [1]. The prognosis of various glomerulonephritis varies widely. Identification of the histology of GN enables an initial diagnosis to be made and a prognosis to be given.

Based on the histopathology of idiopathic glomerular disease, a modified classification by WHO is as follows: Minimal change nephropathy, focal proliferative GN, focal and segmental glomerulosclerosis, membranous glomerulopathy, diffuse mesangial proliferative GN (Ig A and Ig M), diffuse endocapillary GN, mesangiocapillary GN (type I and II) (also known as membranoproliferative GN), and crescentic GN [2].

The correct and appropriate treatment for the many diverse types of renal diseases depends on the accurate diagnosis which will rest mainly on laboratory findings. This will complement the clinical diagnosis which, on its own, will not suffice since clinical manifestations and features are non-specific.

Immunohistochemical methods are usually performed in various tissues to identify immunoglobulins, complement factors and surface antigens. Immunoperoxidase (ImPx) method has been already preferred among others in immunohistochemistry using light microscopy and has become a standard staining technique in most of the diagnostic pathology laboratories worldwide [3,4,5].

ImPx, either direct or indirect, method is employed to renal specimens as a routine procedure at Department of Medical Research (Lower Myanmar) (DMR-LM). Renal biopsy specimens of patients with glomerulonephritis are sent routinely to the Pathology Research Division from the Renal Units of Yangon General Hospital and Thingangyun General Hospital. Report of Haematoxylin and Eosin staining, performed at respective hospitals, also accompanies each of the paraffin-embedded specimen.

At the Pathology Research Division, each paraffin-embedded specimen was cut into six serial sections, each section 3 micron thick. Immunostaining was done using rabbit antisera to human IgA, IgG, IgM, C3c Complement by direct method and C4c and C1q Complement by indirect method. The reagent activity of the antisera was always checked with known positive and negative controls of biopsy tissues. The immunostained biopsy tissue slides were examined and viewed under ordinary light microscope. Brownish yellow stains or staining deposits were taken as positive. Only glomerular positive stains were taken as significant particularly in mesangium, capillaries, membranes and matrix of

glomeruli. Tubular stains are neither important nor significant.

During the period from 1 January 2004 to 31 December 2006, 371 renal biopsies had been received. Among them, membrano-proliferative glomerulonephritis, diffuse mesangial proliferative glomerulonephritis, focal and segmental glomerulonephritis, crescentic glomerulonephritis and minimal change nephropathy constituted 148 (39.9%), 115 (31.1%), 35 (9.5%), 33 (8.9%) and 12 (3.2%) respectively. The profile of immunoglobulin and complement deposits detected by ImPx method for each disease category is shown in Table 1.

Table1. Summary of immunoglobulin deposits detected by immunoperoxidase method in patients with idiopathic glomerulo-nephritis (2004-2006)

Disease Category	Immunoglobulin deposits detected in each disease category					
	IgA (%)	IgG (%)	IgM (%)	C3c (%)	C4c (%)	C1q (%)
Membrano-proliferative GN (MPGN) n=148	99 (67.3)	87 (59.2)	51 (34.7)	41 (27.9)	108 (73.4)	98 (66.6)
Diffuse mesangial proliferative GN (DMPGN) n=115	70 (60.9)	67 (58.3)	38 (33.1)	32 (27.8)	83 (72.2)	59 (51.3)
Focal and segmental glomerulo-sclerosis N=35	29 (82.9)	26 (74.4)	17 (48.6)	15 (42.9)	32 (91.5)	32 (91.5)
Membranous glomerulo-nephritis (glomerulo-pathy) n=33	22 (66.7)	14 (42.4)	8 (24.2)	7 (21.2)	25 (75.8)	20 (60.6)
Crescentic GN n=12	9 (74.9)	6 (49.9)	4 (33.3)	5 (41.7)	7 (58.3)	10 (83.3)
Minimal change nephropathy n=2	2 (100)	2 (100)	1 (50)	2 (100)	1 (50)	1 (50)
SLE nephropathy n=12	11 (91.3)	8 (66.6)	6 (49.9)	6 (49.9)	8 (66.6)	9 (49.9)
Others n=14	5 (35.5)	7 (49.7)	5 (35.5)	5 (35.5)	9 (63.9)	9 (63.9)

n = No. of cases
Total no. of renal biopsy specimens examined = 371

According to the data for the reporting period, there were 148 cases of membrano-proliferative glomerulonephritis and was found to be the commonest disease category constituting 39.9% of the total. In this category, C4c was detected in 73.4%, IgA in 67.3%, C1q in 66.6%, IgG in 59.2%, IgM in 34.7%, and C3c in 27.9% of cases.

There were 115 cases of diffuse mesangial proliferative GN. This category constituted 31.1% of the total and was the second commonest disease category. In this category, C4c was found in 72.2%, IgA in 60.9%, IgG in 58.3%, C1q in 51.3%, IgM in 33.1%, and C3c in 27.8% of cases.

As the report was based on the data from routine procedures of DMR-LM, the main drawback in this short report is that we are unable to make a comparison of the findings between ImPx and other methods like Immunofluorescence Microscopy and Electron Microscopy. We also lack to correlate clinical manifestations and glomerular pathology.

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