Clinical and Pathologic Features of Acute Glomerulonephritis

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ABSTRACT

Background & Objectives: Glomerulonephritis is a progressive kidney disease that involves the glomeruli, the individual filtering units of the kidney that produce urine. When the glomeruli become inflamed, the kidneys can't filter urine properly.

Methods: A sample of percutaneous renal biopsies for medical renal disease submitted to the nephro-pathology unit of University Hospital Center "Mother Theresa", Tirana, Albania from January 2010 to December 2011 were included.

Results: A total of 239 biopsies were thus included in the study, 109 obtained during 2010 and 130 during 2011. The indications for renal biopsy, as obtained from the histopathology request forms, were used for the categorization of data, which were statistically analyzed using a standard chi-square test.

Interpretation & Conclusion: The nephrotic syndrome, if it occurs, proliferates and persists in patients with progressive renal insufficiency but subsides in others who are left with relatively unimpaired renal function and who may go on to recovery.

Key Words: Nephrotic Syndrome, Acute renal failure, Non-nephrotic Proteinuria

1. Introduction

Glomerulonephritis [GN] remains major cause of morbidity and mortality from renal disease in many parts of the world. Glomerulonephritis can lead to chronic renal (kidney) failure, resulting in a buildup of excess fluid and toxins in the body. [1] Its prevalence among dialysis patients in Albania has been reported as 16.6% in 1996. [3] The primary cause of GN is infections from Streptococcus, schistosomiasis and malaria. [8] Others are only speculative, being suspected from the strikingly high prevalence of proliferative GN, the prototype lesion of such etiology. Other factors, like environmental may also be involved as modifiers...
of the glomerular pathology in different geographical regions. Of particular interest is the role of heavy metal [10] and hydrocarbon [11] pollution, the epidemiological significance of which remains to be clarified.

This research aims to identify the patterns of glomerular disease in specific regions. In this paper, we review the prevalence of different forms of GN in Albania, based on retrospective analysis of renal biopsies obtained over a 2-year period.

2. Materials and Methods

A sample of percutaneous renal biopsies for medical renal disease submitted to the nephropathology unit of University Hospital Center "Mother Theresa", Tirana, Albania from January 2010 to December 2011 were included. These had been obtained from patients presenting to the University hospital or referred from other renal units mostly in the Tirana area.

A total of 239 biopsies were thus included in the study, 109 obtained during 2010 and 130 during 2011. Of these 122 had been obtained from male subjects and 117 from females. The age-range was 12 to 77 years with a mean of 29.6 ± 15.4 years, without significant difference between genders. 63 patients (26.3%) between 12-20 years, 114 (47.6%) between 20-40 years, 45 (18.7%) between 40-60 years and 18 (7.4%) above 60 years. The indications for renal biopsy, as obtained from the histopathology request forms, were used for the categorization of data, which were statistically analyzed using a standard chi-square test.

Results

The categories of biopsies included in the study are shown in [Table - 1] based on the indication for biopsy.

<table>
<thead>
<tr>
<th>Table 1</th>
<th>The pattern of Glomerulopathy</th>
<th>n</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Primary Nephrotic Syndrome (PNS)</td>
<td>93</td>
<td>38.8</td>
</tr>
<tr>
<td></td>
<td>Secondary Nephrotic Syndrome (SNS).</td>
<td>40</td>
<td>16.6</td>
</tr>
<tr>
<td></td>
<td>Acute renal failure (ARF)</td>
<td>44</td>
<td>18.5</td>
</tr>
<tr>
<td></td>
<td>Non-nephrotic Proteinuria</td>
<td>27</td>
<td>11.2</td>
</tr>
<tr>
<td></td>
<td>Chronic renal failure</td>
<td>21</td>
<td>8.6</td>
</tr>
<tr>
<td></td>
<td>Isolated Hematuria</td>
<td>15</td>
<td>6.3</td>
</tr>
<tr>
<td></td>
<td><strong>Total</strong></td>
<td>239</td>
<td>100</td>
</tr>
</tbody>
</table>

Those in the hypertension and chronic renal failure groups were significantly older than the others. There were no significant differences in the mean age between males and females within any category. The nephrotic syndrome was the presenting feature in 133 (55.4%) patients, acute renal failure in 40 (15.6%), non-nephrotic proteinuria
in 27 (11.2%), chronic renal failure in 21 (8.6%) and isolated hematuria in 15 (6.3%). Among the patients with PNS, membranoproliferative glomerulonephritis (MPGN) was the most common pathology, being detected in 36 patients (38.3%) followed by focal segmental glomerulosclerosis (FSGS) in 21 (22.7%), [Table - 2].

<table>
<thead>
<tr>
<th>Table 3</th>
<th>Secondary nephrotic syndrome SNS</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Histopathological Group</strong></td>
<td>n</td>
</tr>
<tr>
<td>Amyloidosis</td>
<td>19</td>
</tr>
<tr>
<td>Systemic Lupus Nephritis (SLE)</td>
<td>14</td>
</tr>
<tr>
<td>Diabetes Melitus</td>
<td>3</td>
</tr>
<tr>
<td>Hepatitis BsAg (HBsAg)</td>
<td>2</td>
</tr>
<tr>
<td>Hepatitis C (HCV)</td>
<td>2</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>40</td>
</tr>
</tbody>
</table>

There were 44 patients (18.5%) who presented with acute renal failure (ARF), [Table - 1]. Rapidly progressive glomerulonephritis (RPGN) was the leading cause of ARF and was found in 12 (26%) patients.

In the 27 patients (11.2%) who had non-nephrotic proteinuria as the clinical presentation, the histological findings were distributed as follows. MPGN was found in 9 (30%) patients.

The patients who presented with isolated hematuria had either macroscopic (5 cases) or microscopic (10 cases) hematuria.

Of the 32 patients who presented with chronic renal failure, FSGS and amyloidosis were the leading findings. The rest of causes were of multiple etiologies.

**Conclusion**

The prevalence of 5.6% of IgA nephropathy in our study is perhaps marginally higher than the...
average 4.3% IgA nephropathy of other publications. [5] The prevalence of SLE was 35%. This is probably not much different from the report of 38.8% prevalence reported by Likaj et. al. [4] Results related to the acute renal failure group, findings are in agreement to what has been published previously. [3] Finally, the findings among the elderly group (age between 12-77 years) were interesting and not different from previous publications. [12-17] Patients with nephritis were entirely asymptomatic and were discovered only by routine surveillance for microscopic hematuria. Corresponding laboratory studies from many of these patients revealed no marked abnormalities despite biopsy evidence of acute nephritis. This study indicates that in epidemic nephritis a significant proportion of cases in which pathologic changes are found on renal biopsy may go undetected unless there is extensive screening of the population at risk.

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References


