Clinicopathological Study of Nephrotic Syndrome in North Indian Patients

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ABSTRACT:
Nephrotic syndrome is a group of symptoms that include protein in the urine, low blood protein levels, high cholesterol levels, high triglyceride levels, and swelling. Nephrotic syndrome is caused by different disorders that damage the kidneys. This damage leads to the release of too much protein in the urine.

The following tests should be performed to determine whether the nephrotic syndrome is idiopathic or secondary and, if INS has been determined, whether signs of chronic kidney disease, kidney insufficiency, or other signs exclude the possibility of minimal change nephrotic syndrome (MCNS):

- Complete blood count (CBC)
- Metabolic panel - levels of serum electrolytes, calcium, phosphorus, and ionized calcium, as well as of blood urea nitrogen (BUN) and creatinine
- Testing for HIV
- Testing for hepatitis B and C
- Complement studies (C3, C4)
- Antinuclear antibody (ANA), anti-double-stranded DNA antibody (in selected patients)

Other tests and procedures in selected patients can include the following [2]:

- Genetic studies
- Kidney ultrasonography
- Chest radiography

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Some degree of correlation between lipids and serum albumin as suggested by Thomas et al and between lipidaemia and edema by Peters et al generally, when edema regress. Lipid level fall but in some cases, it may continue to persist even after the edema has disappeared. Hyperlipidaemia usually observed during the active phase of the disease and disappears with resolution of proteinuria. Hyperlipidaemia may contribute to renal injury and experimental studies demonstrated that reduction of plasma lipids level slow progression of Glomerular and Tubulointerstitial disease [3, 4].

Hyperlipidaemia is usually observed during the active phase of the disease and disappears with resolution of proteinuria. However, it may persist in some cases, leading to increased risk of atherosclerosis in later life. Hence, close monitoring of lipid levels during remission of nephrotic syndrome is necessary to select high-risk patients5.

Lipoproteins play an important role in the transport of plasma lipids; their increase or alteration in various fractions may be responsible for hypercholesterolemia, in nephrotic syndrome. There is increased total cholesterol, LDL cholesterol, VLDL cholesterol and triglycerides and normal or low HDL cholesterol6. More recently it has been expressed that hyperlipidemia may contribute to renal injury [5]. And experimental studies demonstrated that reduction of plasma lipid levels slows progression of glomerular and tubulointerstitial disease [6]. A great deal of evidence is now available to show that the incidence of Nephrotic Syndrome varies from place to place due to changes in food habits, climate, type of work and ethnic origin. It has also been noted that certain factors like diet, malnutrition, genetic traits etc., are known to alter the frequency and severity of lipid pattern. The Indian patient has a different dietary, constitutional and genetic background. Hence, we undertook a study to determine the clinicopathological correlation in primary nephrotic syndrome patients.

MATERIALS AND METHODS [7]:-
The present study was planned in North Indian Hospital. The total 20 patients referred to Out-Patient Department (OPD) and in-patient department (IPD). The aim and the objective of the study were conveyed to patients. All the patients were subjected to renal biopsy.

Inclusion Criteria:
- Patients having nephrotic syndrome
- Hyper proteinuria

Exclusion Criteria:
- Parents having other diseases
- Patients on Diuretic therapy
- Diabetes, renal failure and urinary tract infection.

RESULTS AND DISCUSSION:-
The data obtained from the 20 enrolled patients is presented as below.

Table 1: Age & number of patients:

<table>
<thead>
<tr>
<th>Age in yrs</th>
<th>Group I</th>
</tr>
</thead>
<tbody>
<tr>
<td>21-30 yrs</td>
<td>9</td>
</tr>
<tr>
<td>31-40 yrs</td>
<td>5</td>
</tr>
<tr>
<td>41-50 yrs</td>
<td>3</td>
</tr>
<tr>
<td>51-60 yrs</td>
<td>3</td>
</tr>
<tr>
<td>Total</td>
<td>20</td>
</tr>
</tbody>
</table>

Table 2: Observed Symptoms

<table>
<thead>
<tr>
<th>Age in yrs</th>
<th>Group I</th>
</tr>
</thead>
<tbody>
<tr>
<td>Swelling of feet and puffiness of face</td>
<td>8</td>
</tr>
<tr>
<td>Distension of abdomen and difficulty in breathing</td>
<td>3</td>
</tr>
<tr>
<td>Weakness, loss of appetite, and generalized body ache</td>
<td>4</td>
</tr>
<tr>
<td>Pallor and dizziness</td>
<td>2</td>
</tr>
<tr>
<td>Decreased urinary volume</td>
<td>3</td>
</tr>
<tr>
<td>Total</td>
<td>20</td>
</tr>
</tbody>
</table>

The Swelling of feet and puffiness of face is found in about 8 patients out of 20. Weakness, loss of appetite, and generalized body ache is seen in 4 patients. Distension of abdomen and difficulty in breathing is observed in 3 patients. Pallor and dizziness is seen in 2 cases and Decreased urinary volume is observed in 3 patients.

Table 3: Histopathology of renal biopsy

<table>
<thead>
<tr>
<th>Histopathological Observation</th>
<th>Number of Observation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Minimal change glomerulonephritis</td>
<td>11</td>
</tr>
<tr>
<td>Membranoproliferative glomerulonephritis</td>
<td>2</td>
</tr>
<tr>
<td>Focal segmental glomerulosclerosis</td>
<td>1</td>
</tr>
<tr>
<td>Membranous glomerulonephritis</td>
<td>3</td>
</tr>
<tr>
<td>Diffuse proliferative glomerulonephritis</td>
<td>2</td>
</tr>
</tbody>
</table>

The most common primary glomerular diseases causing nephrotic syndrome in children and adults are minimal change diseases and membranous glomerulonephritis, respectively [8]. Recently it has been found that Focal segmental glomerulosclerosis is most common cause of primary nephrotic syndrome in children and adults[9]. Control of proteinuria is therefore essential to prevent the progression of renal diseases to chronic renal failure [10]. The most common cause of primary nephrotic syndrome is minimal change diseases, edema being the...
commonest presenting sign.

CONCLUSION:-
Establishing the type of glomerular diseases is essential from the therapeutic point of view and for predicting the prognosis. Therefore, renal biopsy should be performed particularly in adult patients of nephrotic syndrome.

REFERENCES: