A STUDY OF MICROALBUMINURIA IN ESSENTIAL HYPERTENSION AND ITS CORRELATION WITH THE TARGET ORGAN DAMAGE

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ABSTRACT

Hypertension is one of the most common disease afflicting humans throughout the world. Target organ damage resulting from hypertension includes those affecting the brain, heart, kidneys and the eyes. Focal neurological deficits, dyspnoea, chest pain, headache, loss of vision are considered as the commonest symptoms with which patients having hypertension related acute target organ damage present.

OBJECTIVES

To assess the prevalence of micro-albuminuria among the non-diabetic hypertensive patients and to assess the relationship between micro-albuminuria and target organ damage.

MATERIALS AND METHODS

A cross-sectional study was conducted in 100 hypertensive patients microalbuminuria was measured in these patients by micral dipstick method. Chi-square test was used to study the relationship between microalbuminuria and other variables. P value was calculated for all the variables.

RESULTS

The prevalence of microalbuminuria was 23% among the non-diabetic hypertensive patients. A positive correlation between microalbuminuria and target organ damage was found in these patients. The odds ratio for microalbuminuric patients having retinopathy was 8.3% (95% confidence interval 2.4-37.5). Prevalence of microalbuminuria was higher among patients with Cerebrovascular Accidents (P < 0.001) with the odds ratio of 15.3 (95% confidence interval 4.9-47.5) and it was observed that there was significant correlation between the prevalence of microalbuminuria and the presence of LVH (P <0.001) with the odds ratio of 10.4 (95% confidence interval 3.52-30.8) in hypertensive patients.

CONCLUSION

Microalbuminuria had a statistically significant correlation with the target organ damage. Extensive screening for microalbuminuria is required in hypertensive subjects to assess the cardiovascular risk.

KEYWORDS

Hypertensive Patients, Microalbuminuria, Target Organ Damage.


INTRODUCTION

Hypertension is one of the most common disease afflicting humans throughout the world.1,2 Because of the associated morbidity and mortality and the cost to society, hypertension is an important public health challenge. Over the past several decades, extensive research, widespread patient education, and a concerted effort on the part of health care professionals have led to decreased mortality and morbidity rates from the multiple organ damage arising from years of untreated hypertension.1,3,4

Wide variability in the incidence of microalbuminuria in various studies may be related to the severity and control of hypertension, selection criteria, racial differences, etc. The relationship between blood pressure and risk of cardiovascular disease events is continuous, consistent and independent of other risk factors.

Target organ damage resulting from hypertension includes those affecting the brain, heart, kidneys and the eyes.5 A number of cardiovascular, pulmonary and neurological symptoms are found to be associated with hypertensive patients having target organ involvement. Focal neurological deficits, dyspnoea, chest pain, headache, loss of vision are considered as the commonest symptoms with which patients having hypertension related acute target organ damage present.6 With this background, our study was aimed to assess the prevalence of microalbuminuria among the non-diabetic hypertensive patients and to assess the relationship between microalbuminuria and target organ damage.

MATERIALS AND METHODS

A cross-sectional study was conducted in patients attending the Department of General Medicine Department, Katuri Medical College and Hospital, Guntur. Patients diagnosed with hypertension were included in the study after fulfilling inclusion and exclusion criteria. The study was conducted for a period of 3 months. A predetermined proforma was used to record the details of history, physical examination and investigations. Microalbuminuria was assessed by urine Micral Strip test. Chi-square test was used to study the relationship between microalbuminuria and other variables. P value was calculated for all the variables. For those variables with significant P value, odds ratio was calculated.

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Inclusion Criteria
1. Patients who were under the treatment for hypertension and newly diagnosed hypertensives with systolic BP >140 and diastolic BP >90mmHg.
2. Age group included was 30 to 80 years.

Exclusion Criteria
1. Patients with overt proteinuria, congestive cardiac failure, renal failure, urinary tract infections and diabetes mellitus were excluded from the study.
2. Pregnant women were also excluded from the study.

RESULTS
Out of 100 patients, 71 were males and 29 were females. Microalbuminuria was observed in 23 patients. Presence of microalbuminuria in different age groups was presented in Table 1. Distribution of microalbuminuria according to sex was shown in Table 2. Distribution of microalbuminuria among different groups depending upon the duration of HTN was shown in Table 3. Microalbuminuria was present in 80% of patients with duration of hypertension more than 10 years.

<table>
<thead>
<tr>
<th>Age (In years)</th>
<th>Number of Cases</th>
<th>Microalbuminuria</th>
<th>%</th>
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<tbody>
<tr>
<td>30-39</td>
<td>7</td>
<td>0</td>
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<tr>
<td>40-49</td>
<td>22</td>
<td>4</td>
<td>18.2</td>
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<tr>
<td>50-59</td>
<td>24</td>
<td>10</td>
<td>41.7</td>
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<tr>
<td>60-69</td>
<td>35</td>
<td>7</td>
<td>20.0</td>
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<tr>
<td>70-79</td>
<td>12</td>
<td>2</td>
<td>16.7</td>
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<tr>
<td><strong>Total</strong></td>
<td><strong>90</strong></td>
<td><strong>35</strong></td>
<td><strong>38.2</strong></td>
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</table>

<table>
<thead>
<tr>
<th>Sex</th>
<th>Number of Cases</th>
<th>Microalbuminuria</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>71</td>
<td>16</td>
<td>22.5</td>
</tr>
<tr>
<td>Female</td>
<td>29</td>
<td>7</td>
<td>24.1</td>
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</table>

Microalbuminuria increases with the age of the patient, the duration and severity of hypertension. Microalbuminuria had a statistically significant correlation with the target organ damage. Extensive screening for microalbuminuria is required in hypertensive subjects to assess the cardiovascular risk.

REFERENCES