Material and Methods
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The present study was hospital based study Patients for the present study were selected to predecided selection criteria from those attending out patient’ department, Nephrology clinic, Cardiologic clinic, Hypertension clinic and in Medicine Wards of MLB Medical College, Jhansi. The protocol of study was explained to all patient and their verbal consent was obtained for the inclusion in the study.

SELECTION OF CONTROLS

15 normotensive person both male and female ages 41-60 years and free from renal disease and diabetes

SELECTION OF CASES

40 cases of hypertension were selected according to selection criteria

SELECTION CRITERIA

1. Patients with systolic BP 140 mgHg or more, Diastolic BP 90 mmHg or more or taking antihypertensive drugs

2. Patients of both sexes aged 41-60 years with or without associated risk factors –
   - Diabetes
   - Dyslipidemia
- Obesity and overweight
- Smoking
- Alcohol

EXCLUSION CRITERIA

Known reason for abnormal renal size
- Last cyst or multiple cyst
- Unilateral kidney
- End stage renal disease
- Hydronephrosis
- Renal tumors

All the cases of hypertension were thoroughly interrogated and clinically examined

METHODS

History and clinical examination

All selected cases were subjected to detailed history recording and physical examination and data collected was noted serially in a predesigned proforma

Blood pressure was recorded according to guidelines

Patients' height (in m) and weight (in Kg) were recorded

Body mass index (BMI) of all cases was calculated by

\[ BMI = \frac{\text{weight (in Kg)}}{\text{Height}^2 \text{ (in m)}} \]
<table>
<thead>
<tr>
<th>Classification</th>
<th>BMI (Kg/m²)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Under weight</td>
<td>&lt; 18.5</td>
</tr>
<tr>
<td>Normal range</td>
<td>18.5 – 24.9</td>
</tr>
<tr>
<td><strong>Over weight</strong></td>
<td></td>
</tr>
<tr>
<td>Pre obese</td>
<td>25 – 29.9</td>
</tr>
<tr>
<td>Obese Class I</td>
<td>30 – 34.9</td>
</tr>
<tr>
<td>Obese Class II</td>
<td>35 – 39.9</td>
</tr>
<tr>
<td>Obese Class III</td>
<td>&gt; 40</td>
</tr>
</tbody>
</table>

Body surface area (BSA) in meter² of all cases was calculated from standard table.

**Investigations**

**Routine**

1. Blood  Hb%
   TLC
   DLC
   ESR
   GBP

2. Urine  Routine
   Microscopic examination
   24 hr urinary protein

3. ECG
4 X-ray chest

5 Fundus examination by Ophthalmoscope

Specific

1 Blood Sugar

Fasting

Post Prandial

2 Serum creatinine

3 Lipid Profile  Total cholesterol, LDL, HDL, Triglyceride

4 Serum electrolytes (Na⁺, K⁺)

5 Real ultrasonography – For Kidney size

Ultrasonographic examination

Ultrasonographic examination of all patients were carried out with REAL TIME ULTRA SOUND SCANNING UNIT using 3.0 MHz frequency transducer. Thermal printer was used for print outs.

The patient were instructed to report to the department of Radiology in the morning. Ultra sonography of kidneys, ureter and bladder was done to measure kidney size and to exclude the case which were having other pathology of kidney like stone, polycystic kidney disease etc.

Mean values of measurements form the right and the left kidneys were used for statistical analysis. The data are presented as mean ± S.D. Student’s two – tailed t-test was used to compare control and study groups. P values < 0.05 were considered statistically significant.
Univariate regression analysis was done to analyze the effect of following risk factor variables on kidney size:

- Blood pressure
- Body mass index (Kg/m\(^2\))
- Body Surface Area (m\(^2\))
- Fasting Blood Sugar (mg/dl)
- Lipid Profile
  - Total cholesterol (mg/dl)
  - LDL (mg/dl)
  - HDL (mg/dl)
  - Triglycerides (mg/dl)
- Smoking
- Alcohol