MATERIAL
AND
METHODS
MATERIALS & METHODS

This study was conducted on the patients attending the cardiology clinic, emergency/out-patients department, ICCU & wards run by the Department of Medicine, M.L.B Medical College, Jhansi. The cases of Acute Myocardial Infarction were selected. The study was performed on group of 53 patients of Acute Myocardial Infarction.

CRITERIA'S OF SELECTION OF CASES:

1. History of chest pain > 30min and frequently for number of hours. Chest discomfort described as constricting, crushing, compressing sensation of a heavy weight or squeezing/stabbing/burning sensation.

2. ECG finding –

(a) *Abnormal Q wave* > .03sec in lead I,II,III, aVI, aVF, V4, V5 V6, (Instead of amplitude duration of Q wave is important)

*Presence of Q wave in aVR, V1, V2, V5, of any amplitude or duration.*

(b) Abnormal ‘R’ wave

\[
\begin{align*}
I &= 'R' \text{ amp } \leq 0.20\text{mV} \\
\text{aVL} &= 'R' \text{ amp } \leq \text{Q amp} \\
\text{aVF} &= 'R' \text{ amp } \leq 2 \times \text{Q amp} \\
V_1 &= 'R' \text{ duration } \geq 0.04 \text{ sec} \\
& \text{ 'R' amp } \geq 0.60\text{mV (6 small square)}
\end{align*}
\]
'R' amp $\geq$ 'S' amp

$V_2$ = 'R' duration $\geq$ 0.05 sec

'R' amp $\geq$ 1.50mv (15 small sq) Post wall MI of LV

'R' amp $\geq$ 1.5 X 'S' amp

$V_2$ = 'R' duration $\leq$ 0.01 sec or amp $\leq$ 0.10mv

$V_3$ = 'R' duration $\leq$ 0.02 sec or amp $\leq$ 0.20mv

$V_4$ = 'R' duration $\leq$ 0.70 mv or $\leq$ 'Q' amp

$V_5$ = 'R' duration $\leq$ 0.70 mv or $\leq$ 2 x 'Q' amp

$V_6$ = 'R' duration $\leq$ 0.60 mv or $\leq$ 3 x 'Q' amp

(c) **ST Segment** –
- Slope elevation of the S - T segment
- ST segment become straightened with an upward slope

(d) **‘T’ wave** –
‘T’ wave become very tall and wide

3. **Cardiac Marker** :
- Creatine phosphokinase – MB $> 12$iu/litr. (95% specificity)
- Trop T +ve

4. **Echo finding** :
- RWMA - Regional Wall Motion Abnormality
- Decreased ejection fraction
- Fractional shortening
- Abnormal relaxation

**History**: The history was recorded in detail for each patient including duration of symptoms, personal history, past history, family history, dietary history, drug history & complications.
Examination: General examination was done to know the general condition, pulse rate, respiratory rate, blood pressure, temperature, pallor, icterus, cyanosis, clubbing, edema, hydration, lymphadenopathy, JVP etc. Multiple readings of blood pressure were taken at each visit, B.P. measured by mercury sphygnomanometer in both sitting & lying down position.

Systemic examination to find out changes due to myocardial infarction and associated complications, this included examination of neck, to palpate, auscultate the carotid and thyroid, examination of heart for size, rhythm & sound eg. associated murmur S\textsubscript{3} or S\textsubscript{4}, pericardial rub etc.

Lungs for rhonchi and rales were examined. The abdomen was examined for hepatomegaly/hepatojugular reflux, renal masses, bruits over aorta or renal arteries, examination of extremities of peripheral pulses & Edema.

Neurological assessment was also done to detect hemiplegia or other neurological deficit.

Fundus examination was done to do evaluation of hypertensive or diabetic changes in eyes.

Investigations: The investigations included

1. Haemogram (Hb\%, TLC, DLC, ESR) -
2. Blood urea
3. Serum creatinine
4. Blood sugar (Fasting, P.P.)
5. Urine Routine Microscopic
6. Serial 12 leads – ECG
   a. Qs complex
   b. Qr complex
   c. Loss of R wave amplitude
   d. ST segment elevation
   e. Tall & widened ‘T’ waves

7. CPK – MB
8. Trop – T
9. Lipid profile – S. Total cholesterol > 200mg/dl
   S. Triglycerides
   LDL > 160 mg/dl
   HDL < 35

10. Serial Echocardiography

   The patients were examined in left lateral position (To obtain a
good echogenic window) 2-D and Doppler echocardiography
examination were performed with HP- Sonos-2000 cardiac Ultrasound
Unit using 2.5 MHz transducer. Measurement of different cardiac
chambers were made according to the recommendations of the
American Society of Echo-cardiography. The systolic and diastolic
functions were examined as follows:

   - Hypokinesia of wall (RWMA)
   - Decreased ejection fraction < 50%
   - Fractional shortening
   - Abnormal relaxation pattern

      a) E < A velocity
      b) DT > 240 misc.
c) IRT > 100m.sec.

d) E/A ratio < 1

11. USG abdomen (if indicated)

12. X-Ray chest PA view in deep inspiration.

The cases were followed up during their stay in the hospital and subsequent to their discharge for variable periods of time during their routine visit to the OPD.

The data obtained were critically analysed & statistically evaluated.
**Working Proforma**

**CLINICO-ECHOCARDIOGRAPHIC EVALUATION OF PATIENTS OF ACUTE MYOCARDIAL INFARCTION**

**Investigator:** Dr. DEEPSHIKHA (Medicine)
Maharani Laxmi Bai Medical College, Jhansi

- MRD/OPD No.
- Place of investigation:
- Date of commencement of study:

1. **Personal History**

<table>
<thead>
<tr>
<th>Age/Sex</th>
<th>Religion</th>
<th>Education</th>
</tr>
</thead>
<tbody>
<tr>
<td>Daughter</td>
<td>Son</td>
<td></td>
</tr>
</tbody>
</table>

2. **H/O Coronary risk factors**

<table>
<thead>
<tr>
<th>Duration</th>
<th>Quantity</th>
</tr>
</thead>
</table>

1. Smoking
2. Alcohol
3. Diabetes
4. Hypertension
5. Elevated serum cholesterol
6. Sedentary habit
7. Stress

3. **Complaints & present history**
4. Past history
5. Family history
6. Treatment history
7. Menstrual history (if female)
8. General examination
   1. General appearance
   2. Weight
   3. Height
   4. Pulse rate, rhythm, volume character, radio temoral delay
   5. Blood pressure: sitting lying (systolic/diastolic in upper limbs)
   6. Pallor
   7. Icterus
   8. Cyanosis
   9. Clubbing
   10. Oedema
   11. Hydration
   12. HVP
   13. Skin-Xanthelasma/Tendon Xanthemia
   14. Eye: Arcus Seniles

9. Systemic Examination
   (a) Cardiovascular system
   (b) Respiratory system
   (c) Abdomen
   (d) Central nervous system
   (e) Musculoskeletal system

10. Investigation
    ➢ Hb%, TLC, DLC, ESR
    ➢ B. sugar (F & PP)
    ➢ B. urea
    ➢ S. creatine
    ➢ S.G.O.T
    ➢ Lipid profile [s. cholesterol, HDL, LDL, S. triglyceride]
    ➢ CPK – MB
    ➢ Trop – T
    ➢ ECG – 12 leads
    ➢ X – Ray chest PA view (in deep inspiration)
    ➢ Echo
    ➢ Fundus examination

11. Advice

12. Follow-up

<table>
<thead>
<tr>
<th>Date</th>
<th>HR</th>
<th>PR</th>
<th>RR</th>
<th>BP</th>
<th>S₂ S₂</th>
<th>ST-T changes</th>
<th>CPK-MB</th>
<th>Complications</th>
<th>Others</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>