SUMMARY

Analysis of heart rate variability (HRV) is a noninvasive method of assessing the integrity of neural input to the cardiovascular system ***(Pagani et al., 1986). Bigger and Coworkers in 1992*** have extended the use of HRV analysis into the clinical domain by demonstrating its value in risk stratification of patients after myocardial infarction . This finding has been confirmed by other investigators ***(Cripps et al.,1991)*** and has also been found in patients with stable coronary artery disease ***(Rich et al .,1988).***

The aim of this work is to study H.R.V. parameters in patients with unstable angina and to see if these parameter have any prognostic value.

Fifty patients with unstable angina were included in this study. They were selected from CCU at Benha University Hospitalduring the period from May 2001 to May 2002.Ten healthy control subjects were also included for comparison .

All patients are subjected to the following :

1- Thorough history taking and clinical examination to detect risk factors of coronary artery disease and to exclude other causes of chest pain.

2- Resting E.C.G: resting 12 lead. E.C.G. was done to confirm the diagnosis of unstable angina and exclude ST elevation MI, AF and conduction defects.

3- Routine laboratory investigations:

Blood sugar, serum creatinine and cardiac enzymes were done to all patients to exclude M.I., renal failure and diabetes mellitus.

4 - H. R.V analysis:

H.R.V. was studied using Schiller analysis program by Schiller AG CS100 device which determine H.R.V. by recording 1024 hart beats, digitize the data and calculate parameters of H.R.V. which include spectral and non spectral measurements.

The following parameters were recorded for each patients :

Time domain (NN50and rMSSD) for non spectral analysis of H.R.V.

Frequency domain (L.F,H.F and L.F/H.F ratio) were recorded for spectral component of HRV.

5- Echocardiographic examination, full echocardiographic examination was done to all patients mainly to study the systolic and diastolic function of the heart through evaluation of ejection fraction, wall motion abnormalities and exclude congenital; and rheumatic heart disease.

6- Coronary angiographic study: was done to all patient to detect the underlings coronary artery disease and assessment of its severity.

Diabetic patients, patients with congenital, rheumatic heart disease, heart failure, renal failure, atrial fibrillation and conduction defects were excluded from this study.

Statistical analysis of the result of this study revealed:

1- There is significant global reduction in HRV parameters in patients with unstable angina compared to control group.

- NN50 was 3.2 ms in patient compared to 20.1 ms in control study ($P < 0.01$).

- rMSSD was 10.1 ms in patient compared to 42.1 ms in control study ($P < 0.01$).
- L.F. was 50 ms^2. in patients compared to 350ms^2 in control group ($p < 0.001$).
- H.F. was 32.5 ms^2 in patients compared to 246 ms2 in control group

However, there's no significant difference between the patient and control groups as regard to L.F./H.F. ratio ($P > 0.05$).

2- L.F./H.F. ratio has a prognostic value in patients with unstable angina as shown in this study that revealed increased L.F./H.F. ratio in five patients (10%) how developed recurrent chest pain during follow-up period. L.F./H.F. ratio was 1.9 in patients with recurrent chest been compared to 1.5 in patient without ($P < 0.05$).

In the present work correlation studies revealed significant correlation between heart rate variability and left ventricular ejection fraction ($r = 0.8$, $p< 0.05$). Also it was found that there is a significant correlation between HRV and the severity of coronary artery disease (percentage of luminal diameter stenosis) ($r = 0.7$, $p < 0.05$).

However, there is no significant correlation between HRV and age ($r = 0.2$, $p > 0.05$), end systolic diameter ($r=- 0.03, p > 0.05$)and end diastolic diameter ($r =- 0.02, p > 0.05$). So HRV studies in patients with unstable angina can detect high risk group to whom aggressive therapy should be given.