Summary and Conclusion

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Stress can be defined as any stimulus, internal or external that disturbs the dynamic equilibrium of the systems of the body. There is a general impression that the incidence of ischaemic heart disease is particularly high amongst professional men and is related to the stress of modern urban life. Factors responsible for the higher incidence of ischaemic heart disease are by no means clear in certain occupations and social classes. The degree of mental stress and strain or other psychological factors, the type of diet or standard of nutrition, and amount of day-to-day physical activity have been suspected but as yet there is little convincing evidence favouring one more than another.

Polymorphonuclear leucocytes (PMNs) are known to accumulate in infarcted human myocardium 12-24 hours after a permanent coronary occlusion, their presence peaks around 3-4 days and declines after the first week.

The aim of our work was to study the phagocytic activity of neutrophils in acute myocardial infarction, when the stress of the attack is added to the stress as a predisposing factor.

Neutrophil cells were exposed to the yellow dye nitroblue tetrazolium. Unstimulated neutrophils do not

ingest this dye, but if the cells are stimulated to phagocytic activity, they take the dye into phagosomes and intracellular reduction of the dye converts it to an insoluble, blue crystalline form (formazan crystals). These blue crystals are visible in the light microscope and can be counted. The nitroblue tetrazolium test gives information about phagocytic function, since the dye is not taken into cells except by phagocytosis. This test is easily done, accurately interpreted and slides can be kept for further follow up. The study included 50 patients, with acute myocardial infarction, diagnosis based on clinical, ECG and laboratory enzymes determination, besides 20 control subjects. The mean age of patients and control subjects was similar. Patients were classified into 3 groups according to time of admission after the onset of attack. Patients admitted one or two days after the occurrence of the attack (group I), those admitted on 3rd and 4th day (group II), and lastly (group III) included patients admitted on 5th, 6th and 7th day from the occurrence of the attack. This allows thorough study of effect of stress and duration of disease on the phagocytic activity.

In our work, we have found that in early acute myocardial infarction, there is enhancement of one of the important physiological functions of neutrophils that is phagocytosis. This enhancement is probably caused by effect

of cardiac stress because this effect was found in all cases studied irrespective of any predisposing factors namely, smoking, diabetes and hypertension. Increased phagocytic activity was found in predisposed and non-predisposed patients favouring the effect of stress.

From this work, we can conclude that:

* Peripheral leucocytosis in acute myocardial infarction starts from the first day of the attack and probably before. This may be regarded as a component of the generalized stress response.
* Peripheral leucocytosis once started after the attack, it has been found to last during the first week.
* Phagocytic activity is also increased and starts early with the attack of acute myocardial infarction, this activity continues during the first week.

So, we recommend extension of this study to include cases with stable angina, as determination of the phagocytic function in those patients may prove to be of help in discovering susceptible cases to acute myocardial infarction. Also extension should include cases with acute myocardial infarction after the lapse of the first week and also, the study of neutrophil function weekly to assess the value of phagocytic function determination and to correlate with total leucocytic count, enzymatic activity and the size of the infarct.