WHAT IS THE LINK BETWEEN PSYCHOSOCIAL FACTORS AND CARDIOVASCULAR DISEASE.

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A historical overview and the current status of research findings linking psychosocial factors and cardiovascular disease will be presented.

Anger, **anxiety**, and **depression** have been shown to be the most important psychosocial factors that contribute both to the initial cardiovascular problem as well as to the potential for recovery from such problems (Blumenthal, 1999, Frasure-Smith,1999, Krantz, 2000, Matthews, 2000, Williams, 2000, Allan 2001, Fischer, 2001).

It is a well established fact (Kubler-Ross, 1970, Figley and Cubbin, 1983, Georganda, 1986, Register,1987) that chronic and life threatening illnesses such as thalassemia create an enormous stress on the individual and the family. Such reactions as anger, anxiety and depression are to be expected and dealt with by the treating team.

The psychological well being of the thalassemic patient will influence, to a much larger degree than acknowledged, his/her physical well being. This is true not only in view of the recent research findings that link anger anxiety and depression with heart disease and recovery form such problems but also because such factors play a role in the thalassemic's general compliance with treatment and creation and handling of further complications.

A few years ago I went for one of my regular check-ups to my cardiologist. At the end of our meeting after he had seen my echo, examined me and looked at my history he seemed to ask himself out loud, how come and I who was 40 years old and had lived at a time when the treatment of thalassemia was much less sophisticated than now days seemed to be doing a lot better than some other thalassemics who had half my years. Before he examined me, he had just seen a twenty-year-old who seemed to have a series of heart problems. Dr. Aisopos seemed very concerned about his well

being. To his comment I also wondered out loud: “Do you think that the psychological state of the individual affects his heart condition?” “Yes, it is possible, he said. Catecholamines which seem to play an important role in depression can affect the heart as well”. I left his office wondering whether it would be worthwhile for someone who works at a thalassemia unit to run some research on such factors.

A few months later I was asked to run a course, at the college where I teach, on Health Psychology. They knew I had an interest in the subject and a good background on health related issues in psychology. Of course I jumped at the opportunity to organize the material I had studied over the years and to run a more thorough review of the literature. When the invitation for abstracts for this conference came I thought it was time that I share with the medical community the information I had collected over these years concerning the impact of psychosocial factors on cardiovascular disorders and pose a few questions for us to consider.

Speculations about the link between psychosocial factors and cardiovascular disease are almost as old as medicine itself. In 1628 William Harvey first described the circulatory system and noted that **emotions affect the heart**. In 1897 William Osler-often called the father of internal medicine-described the typical heart disease patient as “a keen and ambitious man, the indicator of whose engine is always at full speed ahead”. In the 1950’s, cardiologists Meyer Friedman, MD. and Ray Rosenman, MD. began their work connecting type-A traits—i.e. free-floating hostility, impatience and insecurity—with cardiovascular disease.

In recent years, anger in particular has attracted great interest from researchers. In a prospective study published in *Circulation* (Vol.101, No.17) last year, psychologist Janice Williams, Ph.D. explored whether angry disposition would lead to heart disease. The results were striking. Among people with normal blood pressure, those with high scores on the anger scale were three times more likely to have suffered heart attacks or sudden cardiac death than those with low scores. The findings held true even after controlling for risk factors such as smoking, having diabetes or weighing too much.

This and other studies have shown a positive association between anger and heart attacks or sudden cardiac death. For example, in a study published in the *Journal of the American Medical Association (JAMA)* last year (Vol. 283, No.19), Karen Matthews,Ph.D. and her colleagues examined the role that hostility—defined as a personality trait marked by cynicism, mistrust, anger and aggression—plays in predisposing young people to cardiovascular disease. They discovered that people who scored above the median on the baseline assessment of hostility were twice as likely to have

coronary calcification than were those scoring below the median. These results held true even after the researchers controlled for demographic, lifestyle and physiological variables.

Psychologists have also been studying the ways psychosocial factors exacerbate problems in people who already have heart disease. In an article in the *Journal of the American Medical Association (JAMA)* last year (Vol. 283, No.14) psychologist David Krantz, Ph.D., reviewed the evidence he and other researchers have collected demonstrating that both chronic and acute mental stress can negatively affect patients with coronary heart disease. Krantz's own work has focused on identifying factors that trigger myocardial ischemia. In laboratory experiments he conducted he was able to provoke ischemia via such mental stresses as math exercises and harassment. He has also studied stress's impact on ischemia in everyday life by asking patients to keep detailed diaries of their activities and emotions. His findings over the years show that mental stress is about as powerful as strenuous exercise as a trigger for ischemia.

Psychosocial factors also influence patients' recovery from heart attacks and other cardiovascular problems. Nancy Frasure-Smith, Ph.D., found that patients who were depressed were three times more likely to die in the year following their heart attack than those who were not depressed, regardless of how severe the heart disease was. Frasure-Smith, an associate professor of psychiatry at the McGill University School of Medicine and a senior research associate at the Montreal Heart Institute, published her study in *Psychosomatic Medicine* in 1999 (Vol. 61, No.26).

The study also identified striking gender differences: Women were twice as likely as men to develop depression after a heart attack, with half of women and a quarter of men experiencing at least mild to moderate depression. Yet women's death rates were nonetheless the same as men's. Social support may influence which depressed patients die, Frasure-Smith found in a study published in *Circulation* (Vol.101, No.16) last year. The study was based on interviews with 887 heart attack patients and found that depression's impact on survival was mediated by patients' perceived social support. Depressed patients who felt didn't get enough support from friends and family members had the highest death rates. In contrast, most depressed patients who reported the most support had the same death rates as nondepressed patients.

Overall we may say that although there is still some debate there is increased recognition among the medical community that such psychosocial factors as hostility, anger, stress, depression and social isolation contribute to cardiovascular disease. Research is

showing that these factors influence the disease's development and prognosis both directly and indirectly through pathophysiological mechanisms and through unhealthy habits such as smoking and bad diets. For an extensive literature review one can turn to the pre-eminent cardiology journal *Circulation* published by Blumenthal and his colleagues in 1999 (Vol. 99, No.16).

Although no research exists on the effects of psychosocial factors on the cardiovascular, as well as general, well being of thalassemics I assume that we are no different than other human beings. Thus, although we do not pay attention to the psychological state of the thalassemic **it is** an important factor that has been left untreated for many many years. Hostility—which we defined as cynicism, mistrust, anger and aggression—together with stress, depression, social isolation and unhealthy habits such as smoking, drinking and bad diet are definitely afflictions of a large number of thalassemics. Can you physicians improve our physical well being without addressing these issues? I believe not.

Medical science has offered us what is feasible for the time being. If we have synthetic blood in the future and if we have the permanent cure through genetic engineering and bone marrow transplantation only the future will show. For now all we can hope for is a safe and good quality blood transfusion and a chelation treatment which would be easier to comply to. However, the general state of the thalassemic today cannot be improved if we do not attend at his/her soul and what it means to be fighting with a chronic illness and its complications.

When I was young I wanted to be a doctor. I wanted to save human beings from diseases and from suffering. I wanted to save myself from my disease and my suffering. When I was an adolescent I had a rough time. With many unfortunate events, however, many fortunate ones come too. So I was lucky to have a young teacher in high school that almost ended as a friend at the end of school. She taught us Modern Greek. It wasn't Cavafy and Seferi that was the gift she gave me. It was her willingness to hear my troubles and support me in my struggles. It was then that I realized for the first time that the mind is more important than the body. If I could keep my mind strong and determined to win, I could stand on my own two feet and make it in my life. It was all in my hands, and so I did. I decided to study psychology and help myself and others deal with the emotional pain that eats up on our soul and leaves us defenseless against all sorts of viruses. If our mind can stay fit among misfortunes we can fight all diseases even the most modern ones like HIV and cancer and hepatitis. The question can no longer be what is our body doing but what is our mind doing.

Freud who is the father of modern psychology and of psychoanalysis was a neurologist. He had a number of patients who came to see him with neurological complaints, such as deafness, blindness, paralysis, for which he could find no physical cause. He slowly developed his theory of hysteria. This theory gave us the basis for the understanding of psychological illnesses, for which medical treatments lead to no improvement. Freud introduced the idea of the unconscious, of internal forces that are conflicting and to the idea of defense mechanisms that help us deal with these conflicts. The severe and extensive use of defenses lead to psychological diseases. Anger and hostility which is unconscious because it is unacceptable to our conscience may equally well lead not only to depression and other psychological illnesses but to cardiovascular and immune system disorders as well. We must look into our unconscious, or at least try to shed some light into dark areas of our soul, so as to improve our psychological **and** physical functioning. In order to gain more control over our life in the here and now.

We must look into our mind and soul for another important reason. As Freud mentioned later in his theory, when he became personally acquainted with death after the loss of his 26 year old daughter and his five year old grandson, human beings are not only inhabited by Life forces. Death forces are a big part of our existence. We do not only want to propagate our species and bring new life into the world. We also want to destroy. Kill and be killed. Today with everything that is taking place around us we should not underestimate the power of self-destructive instincts.