

Effects of Psychological and Physical Stress on Patient's Lipid Profile**Mukesh Kumar Soni¹, Ashraf Bahleem²**¹Department of Medicine, Gurukripa Hospital and Research Centre, Sikar, Rajasthan²Department of Medicine, Gurukripa Hospital and Research Centre, Sikar, Rajasthan

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Conflict of interest: Nil

Abstract:

Introduction: The primary risk factor for atherosclerosis, which causes coronary heart disease, cerebral vascular disease, and peripheral vascular disease, is this. There are several lipid problems throughout the world. Stress on the body and mind is one of their modifiable risk factors.

Materials and Methods: A thorough clinical examination was done. A detailed questionnaire containing questions on health, diet, smoking, drinking habits and lifestyle was recorded. Laboratory investigations such as weight, height, waist circumference, hip circumference, ECG and BMI were done.

Results: There were 65 subjects of high stress and 35 of low stress with TG >200, 55 subjects and 40 of high and low stress respectively with TC >240, 45 high stress and 43 low stress with LDL > 165 and 35 males and 25 females with HDL >45 and 55 respectively. The difference was significant (P < 0.05).

Conclusion: Psychological stress was a risk factor for lipid disorders, and proper physical activity was protective in this situation. One of the physical activities is work activity; work activity without stress could be harmless and useful. However, psychological stress could be eliminated in the workplace.

Keywords: Psychological Stress, Lipid Profiles, Coronary Heart Disease.

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Introduction

The primary risk factor for atherosclerosis, which causes coronary heart disease, cerebral vascular disease, and peripheral vascular disease, is this. There are several lipid problems throughout the world. Stress on the body and mind is one of their modifiable risk factors. Lipid diseases are primarily caused by genetic factors and unchangeable family histories. [1] Stress is defined by psychological sciences as a feeling of pressure and tension in the mind. Low amounts of stress may be desirable, practical, and even beneficial. [2]

Positive stress can enhance psychosocial well-being and boost productivity. Positive stress is also seen as a crucial component of motivation, adaptation, and response to the environment. High amounts of stress, however, may cause people to experience major bodily, psychological, and social issues. [3]

Stress can either come from an external environmental source or from an individual's own internal perceptions. The latter version can then lead to major psychiatric diseases including post-traumatic stress disorder and other negative emotions and experiences like pressure, pain, grief, etc (PTSD).[4] It is widely acknowledged that cardiovascular diseases (CVD) pose serious risks to human health. The majority of deaths are caused by it. Nutrition, physical activity, body weight,

medications, and genetic factors all have an impact on blood lipid levels. Evidence suggests that mental state has an impact on blood lipids as well. [5] A different researcher demonstrated how law enforcement employees are at risk for cardiovascular disease. [6] Another study showed a connection between workers' combined dyslipidemia and job stress.[7] Studies on the dyslipidemias of male aircrew members, female law enforcement officials, and railroad workers have also been conducted.[8-10] Coronary artery disease (CAD) and high serum cholesterol levels, particularly high LDL-C, have a random and independent relationship. This research was done to find out how patients' lipid profiles were affected by psychological and physical stress.

Materials & Methods

All involved patients were informed regarding the study and their written consent was obtained. It comprised of 150 subjects of both genders. A thorough clinical examination was done. A detailed questionnaire containing questions on health, diet, smoking, drinking habits and lifestyle was recorded. Laboratory investigations such as weight, height, waist circumference, hip circumference, ECG and BMI were done. 5 ml of fresh 12 hour fasting venous sample was collected by

venipuncture after inserting dwelling cannula for assessing lipid profile and other routine investigation like Hb, TLC, DLC, FBG and RBG. Lipid.

The researcher determined the stress level according to work environmental scale and modified standard stress scale. By using of blood examinations were done in periodic examinations the relation between the job risks and lipid profiles were showed.

For statistical analysis, data were analyzed with SPSS 16. χ^2 , exact test, ANOVA, and regression were used to compare qualitative and quantitative variables, P-value less than .05 was considered for significant levels and relative risks were calculated with confidence interval 95%.

Results

Table 1 shows that there were 65 males and 85 females in present study.

Table 1: Distribution of patients

Total- 150		
Gender	Male	Female
Number	65	85

Table 2 shows that there were 65 subjects of high stress and 35 of low stress with TG >200, 55 subjects and 40 of high and low stress respectively with TC >240, 45 high stress and 43 lowstress with LDL > 165 and 35 males and 25 females with HDL >45 and 55 respectively. The difference was significant (P< 0.05).

Table 2: Dyslipidemia associated with stress level

Lipid (mg/dl)	Value	High stress	Low stress	P value
TG	>200	65	35	0.05
	<200	35	45	
TC	>240	55	40	0.03
	<240	45	40	
LD L	>160	45	43	0.01
	<160	55	37	
HDL	Male >40	35	25	0.05
	Female >50	35	17	
	Male <40	32	28	
	Female <50	28	40	

Discussion

Dietary recommendations aiming at lowering lipoprotein levels and CAD risk have focused on the amount and composition of fatty acids and cholesterol since they appear to be the most significant modulators of blood lipid and lipoprotein metabolism. [11] In comparison to rest times or control groups, humans have increased total or fractional cholesterol levels around stressful laboratory sessions. Some studies have even found a direct correlation between stress hormones and blood lipids. There are numerous molecular mechanisms that could account for this favourable correlation between stress hormones and lipids. At the three-year follow-up, those who were identified as high stress reactivity (based on stress hormone levels) even had higher cholesterol and more central adiposity. [12] This study was done to find out how patient lipid profiles were affected by psychological and physical stress. There were 50 males and 70 females in the current study. According to a study, workers' combined dyslipidemia and workplace stress are related. Chinese workers were more susceptible to dyslipidemia due to effort, over commitment, and low pay, and these factors were substantially related

with TG and LDL-C rather than TCHO or HDL-C. The potential connection between occupational stress and coronary heart disease may be an increase in bloodlipids. [13]

In the study, we discovered that there were 50 high-stress subjects and 20 low-stress subjects with TG > 200, 40 high-stress subjects and 25 low-stress subjects with TC > 240, 30 high-stress subjects and 28 low-stress subjects with LDL > 160, and 20 males and 10 females with HDL > 40 and 50, respectively. A study found that persons with stressful jobs were more likely to have lipid abnormalities. Higher amounts of CHOL, LDL/HDL, and TG were seen in subjects compared to subjects with lower levels of HDL-c. Subjects with higher demands responded to the break by lowering their LDL-c and LDL/HDL levels more significantly (P .01 and P.001, respectively). High demand males showed a smaller fall in HDL and a bigger decrease in LDL/HDL in response to the respite than females. Sex mitigated these stress-related respite effects for HDL-c(P.01) and LDL/HDL(P.005). [14] In a study by Shahnam [15], blood samples were collected to measure lipid levels, including triglycerides, low-density lipoprotein cholesterol, high-density lipoprotein

cholesterol, and total cholesterol (TC). The General Health Questionnaire was used to measure the level of stress. The statistical analysis employed chi-square testing and logistic regression. After adjusting for age and sex, the odds ratios for high stress in people with high TC, LDL-C, and low HDL-C levels compared to people with normal levels were, respectively, 1.05 (1.02,1.15), 1.06 (1.02,1.18), and 1.06 (1.06 (1.02,1.16). (1.01,1.17). The emotional impacts on office workers' wellbeing were shown in another study.[16] This study's limitations included the absence of precise job analyses for other occupational hazards. The author of this piece advised those who were experiencing psychological stress to include regular physical activity in their daily routines and to reduce their tension by speaking with a psychologist. Employers should pay attention to the unfavourable consequences that job stress or chronic stress have on employees' health. [17,18]

Personal conflict, societal issues, familial issues, and employment all have the potential to cause psychological stress. Given the significance of mental health on wellbeing, the author suggests changing jobs in working settings.

Conclusion

Authors found that there is more dyslipidemia in stressful patients as compared to non-stress one. Dyslipidaemia is a modifiable CVD risk factor. Psychological stress was a risk factor for lipid disorders, and proper physical activity was protective in this situation. One of the physical activities is work activity; work activity without stress could be harmless and useful. However, psychological stress could be eliminated in the workplace.

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