

Jankowska Paula Katarzyna, Jankowski Krzysztof Jacek, Rudnicka-Drożak Ewa. Psychocardiology - forgotten science in the service of cardiovascular disease prophylaxis. Journal of Education, Health and Sport. 2018;8(5):160-168. eISSN 2391-8306. DOI <http://dx.doi.org/10.5281/zenodo.1245950>
<http://ojs.ukw.edu.pl/index.php/johs/article/view/5477>

The journal has had 7 points in Ministry of Science and Higher Education parametric evaluation. Part b item 1223 (26/01/2017).

1223 Journal of Education, Health and Sport eISSN 2391-8306 7

© The Author(s) 2018;

This article is published with open access at Licensee Open Journal Systems of Kazimierz Wielki University in Bydgoszcz, Poland
Open Access. This article is distributed under the terms of the Creative Commons Attribution Noncommercial License which permits any noncommercial use, distribution, and reproduction in any medium, provided the original author (s) and source are credited. This is an open access article licensed under the terms of the Creative Commons Attribution Non commercial license (<http://creativecommons.org/licenses/by-nc-sa/4.0>) which permits unrestricted, non commercial use, distribution and reproduction in any medium, provided the work is properly cited.

The authors declare that there is no conflict of interests regarding the publication of this paper.

Received: 15.04.2018. Revised: 12.05.2018. Accepted: 12.05.2018.

Psychocardiology - forgotten science in the service of cardiovascular disease prophylaxis

Paula Katarzyna Jankowska¹, Krzysztof Jacek Jankowski¹, Ewa Rudnicka-Drożak¹

1 Chair and Department of Family Medicine, Medical University of Lublin

ABSTRACT

Psychocardiology is a science that combines an insight of biomedicine, psychology and sociology sciences. The goal of this discipline is to study the relationship between psychological profile, personality, social functioning and cardiovascular diseases (CVD).

Low socio-economic status, deficiency of social support, stress in work environment and in family life, depression, anxiety as well as hostility are partly responsible for risk of developing CVD and a poor prognosis of CVD.

In everyday practice of physician clinical interview should be used to identify these psychosocial risk factors. After identification of psychosocial problems multimodal behavioural interventions are recommended to implement in treatment process. They should involve health education, physical activity, psychological and pharmacological therapy and learning of techniques of coping with illness and unfavorable social circumstances.

Psychosocial risk factors of cardiovascular diseases are not widely recognized as a cardiovascular risk factor in their own right. However, they contribute to deterioration of

treatment adherence and annihilate attempts of lifestyle improving. The pronounced psychosocial aspects of cardiovascular diseases pathogenesis make health promotion in patients and whole population difficult. Thus, considered factors are ponderous public health problem.

Key words: Cardiovascular Diseases, Depression, Social Isolation,

The latest estimated information for the European Union relating to causes of death is available for the 2014 reference period. In this time diseases of the circulatory system were, by far, the leading causes of death in the EU. [1] Although, between 2004 and 2014, there was a 32.7 % reduction in EU-standardised death rates relating to ischaemic heart disease for men and a 36.8 % reduction for women, it remains the most serious health problem in the population. So far, the main known principles of cardiovascular diseases (CVD) prevention are smoking cessation, healthy diet with reduced saturated fat content, physical activity, weight reduction, maintaining the blood pressure below 140/90 mm Hg, LDL-C and non-HDL-C concentrations depending on the risk category and HbA1c in patients with type 2 diabetes below 7%. The very useful tool in death risk assessment for cardiovascular reasons within 10 years is SCORE Card, using such factors as gender, age, systolic blood pressure, total cholesterol and smoking. All this aspects belong to the area of biomedical science. However there is other group of factors influencing risk of cardiovascular disease. In the INTERHEART study involving 25,000 citizens of 52 countries, psychosocial factors were considered as one of the CVD's independent risk factors [2]. Apart from this wide-ranging scientific project many research works show the relation between other psychosocial aspects and risk of developing CVD.

Initially, psychosocial factors at work, such as excessive workloads, time pressure, ambiguous roles and workplace insecurity as well as poor labour management relations should be recognized as a cardiovascular risk factor in their own right, which is has been confirmed by several studies. [5, 6, 7].

Among others non-biomedical risk factors for cardiovascular disease morbidity and mortality is lack or even low level social support [8,9]. It has been proved that lack of social support and isolation are associated with higher level of risk of cardiovascular disease development. Furthermore rewarding social contacts and support can in effect influence in positive way on cardiovascular disease development possibility [10].

Acute psychological stressors may also trigger of acute coronary syndrome. These stressors include personal negative life events as sudden death of close relative, separation with a spouse or job loss result in acute strong negative emotions [18,19].

Moreover, depression coexists with more frequent cardiovascular disease episodes [20] and is associated with poor CVD prognosis [21]. Anxiety is an independent risk factor for disease of cardiovascular disease as well [22].

In addition hostility, anger and aggressive social relationships are associated with increased risk for cardiovascular incidents [23]. The other psychosocial aspect as poor self expression in social relations and negative affectivity referred to as type D personality may predict unsatisfactory prognosis in patients with cardiovascular disease history. [24].

The pathophysiological and behavioral mechanisms are considered to be the basis of dependence of psychological factors in the etiology and treatment of heart diseases. Therefore low socio-economic status may lead to dysfunction of the autonomic system and related heart frequency, increased intensity of classical risk factors. Workplace and home stress result in activation of the hypothalamic-pituitary-adrenal system with dysfunctional secretion of cortisol and serotonin; elevated concentration of CRP, inflammatory cytokines and fibrinogen. Negative emotions may produce metabolic and lipid disorders, abdominal obesity, depression, obstructive sleep apnea. Further, low socio-economic status may be a reason of unhealthy lifestyle: unfavorable eating habits, smoking, lack of physical activity as well as emotional stress may produce sleeping disorder and result in delay in seeking medical help when serious symptoms arise.

Thus the area of interest of psychocardiology are psychosocial aspects of CVD etiology. The aim of this science is to study the relationship between psychological profile, personality and social environment, and diseases of cardiovascular system. Albeit this branch of science is

well developed, one lively question arise: how psychocardiology may be implemented in ordinary medical practice?

EVERYDAY PRACTICE

In the everyday practice of a doctor, a decisive appraisal of the state of mental health, requiring a long time and experience, can be difficult and aggravating.

Although in this point European Guidelines on Cardiovascular Disease Prevention in Clinical Practice can be helpful, but when should practitioner start the assessment of psychosocial risk factors? According to the recommendations, psychosocial risk factors appraisal should be considered, either through clinical interviews or standardized questionnaires, to identify possible lifestyle modification barriers or to adhere to pharmacotherapy, in patients at high risk of CVD or diagnosed with CVD [11, 12].

HOW TO DO IT?

Authors of European guidelines on cardiovascular disease prevention in clinical practice from 2007 recommend using simple questions to identify serious psychosocial risk factor of cardiovascular disease [13].

The following risk factors are considered:

- (1) low socioeconomic status,
- (2) social isolation,
- (3) work and family stress,
- (4) depression,
- (5) hostility.

The diagnostic tool are short questions:

- (1)
Do you have no more than mandatory education?
Are you a manual worker?
- (2)

Are you living alone?

Do you lack a close confidant?

Do you lack any person to help you in case of illness?

(3)

Do you have enough control over how to meet the demands at work?

Is your reward appropriate for your effort?

Do you have serious problems with your spouse?

(4)

Do you feel down, depressed, and hopeless?

Have you lost interest and pleasure in life?

(5)

Do you frequently feel angry over little things?

If someone annoys you, do you regularly let your partner know?

Do you often feel annoyed about habits other people have?

INTERVENTION – WHAT TO DO AFTER PSYCHOSOCIAL RISK FACTORS ASSESSMENT?

Treatment of psychosocial risk factors can neutralize psychosocial stress and depression and anxiety and result in better life quality and prognosis.

The first step in dealing with cardiovascular patients with psychosocial risk factors is supportive caregiver-patient interaction [16]. Patient centered approach may create a trustful relationship. It may give emotional support and help in overcoming anxiety, depression and many stressors.

The main principles in providing supportive care for patients with psychosocial risk factors are not very complicated. Physician should spend enough time with patient listening him. Other way to gain patient trust is to offer regular follow-up contacts when doctor should not use sophisticated language but explain essential facts in the patient`s language. Healthcare professional should avoid trivialization of patient`s worries and encourage him to share

emotions. Making a summary of important aspects of patient problems at the end of every consultation is also effective way of improving doctor-patient communication.

According to the guidelines in patients at high risk or those with diagnosed cardiovascular disease and psychosocial risk factors behavioral intervention should be prescribed. It integrate health education, psychological therapy and physical exercise [14]. When clinically significant emotional distress will be revealed, patient should be referred to a psychiatrist. Diacrisis of depression should result in treatment with antidepressive pharmacotherapy, in the first line selective serotonin re-uptake inhibitors (SSRI) and psychotherapy. The best approach to the depression in patients with cardiovascular disease is 'collaborative care'. It involves systematic appraisal of symptoms by non-physician care manager and treatment interventions coordinated by specialist [15].

Therefore, intervention in the workplace is also relevant in counteracting psychosocial risk factors of cardiovascular disease. Although this area of action is not within physician reach, healthcare professionals should encourage patient to improve his autonomy at the work and control of emotions in work environment. What is more, psychological interventions targeting managers may have beneficial effect on their subordinates, as it reduces stress which is shared with employees [17].

CONCLUSION

Psychosocial risk factors of cardiovascular diseases are not widely recognized as a cardiovascular risk factor in their own right. This phenomenon is especially frequent among clinicians (general practitioners, internal medicine specialists and cardiologists). However, these non-biomedical risk factors should be taken in consideration so seriously as classic risk factors. It seems to be very difficult and embarrassing to implement such approach in clinical practice, bearing in mind the very limited time that a doctor can give to a particular patient during a visit. Nonetheless such way of dealing with patient is a part of holistic medicine, which means consideration of the complete person, physically, psychologically, socially, and spiritually, in the prevention as well as management of disease. Psychosocial risk factors contribute to deterioration of treatment adherence and annihilate attempts of lifestyle improving. The pronounced psychosocial aspects of cardiovascular diseases pathogenesis

make health promotion in patients and whole population difficult. Thus, considered factors are ponderous public health problem.

References:

1. http://ec.europa.eu/eurostat/statistics-explained/index.php/Health_in_the_European_Union_%E2%80%93_facts_and_figures
Health in the European Union – facts and figures, a Eurostat online publication.
2. Rosengren A, Hawken S, Ounpuu S. INTERHEART investigators. Association of psychosocial risk factors with risk of acute myocardial infarction in 11 119 cases and 13 648 controls from 52 countries (the INTERHEART study): case-control study. *Lancet*, 2004; 364: 953–962.
5. Schnall P, Belkic K, Landsbergis P, et al., editors. *The workplace and cardiovascular disease. Occupational medicine: state of the art reviews.* Philadelphia: Hanley and Belfus, Inc; 2000.
6. Clays E, Leynen F, De Bacquer D, et al. High job strain and ambulatory blood pressure in middle-aged men and women from the Belgian job stress study. *J Occup Environ Med* 2007;49:360—7.
7. Xu W, Zhao Y, Guo L, et al. Job stress and coronary heart disease: a case-control study using a Chinese population. *J Occup Health* 2009;51:107—13.
8. Williams RB, Barefoot JC, Califf RM, *et al.* Prognostic importance of social and economic resources among medically treated patients with angiographically documented coronary artery disease. *JAMA* 1992; 267(4): 520-4

9. Kuper H, Marmot M, Hemingway H. Systematic review of prospective cohort studies of psychosocial factors in the etiology and prognosis of coronary heart disease. *Semin Vasc Med* 2002;2(3): 267-314.
10. Rosengren A, Wilhelmsen L, Orth-Gomer K. Coronary disease in relation to social support and social class in Swedish men. A 15 year follow-up in the study of men born in 1933. *Eur Heart J* 2004.25(1): 56-63.
11. Piepoli M.F, Hoes A.W, Agewall S, et al. 2016 European Guidelines on cardiovascular disease prevention in clinical practice The Sixth Joint Task Force of the European Society of Cardiology and Other Societies on Cardiovascular Disease Prevention in Clinical Practice. *European Heart Journal* (2016) 37, 2315–2381.
12. Albus C, Jordan J, Herrmann-Lingen C. Screening for psychosocial risk factors in patients with coronary heart disease-recommendations for clinical practice. *Eur J Cardiovasc Prev Rehabil*, 2004; 11: 75–79.
13. Graham I, Atar D, Borch-Johnsen K. et al. European guidelines on cardiovascular disease prevention in clinical practice. Fourth Joint Task Force of the European Society of Cardiology and other societies on cardiovascular disease prevention in clinical practice. *Eur J Cardiovasc Prev Rehabil*, 2007; 14 (suppl 2): 1–113.
14. Whalley B, Thompson DR, Taylor RS. Psychological interventions for coronary heart disease: cochrane systematic review and meta-analysis. *Int J Behav Med* 2014;21:109–121.
15. Huffman JC, Mastromauro CA, Beach SR, Celano CM, DuBois CM, Healy BC, Suarez L, Rollman BL, Januzzi JL. Collaborative care for depression and anxiety disorders in patients with recent cardiac events: the Management of Sadness and Anxiety in Cardiology (MOSAIC) randomized clinical trial. *JAMA Intern Med* 2014;174:927–935.
16. Ladwig KH, Lederbogen F, Albus C, Angermann C, Borggrefe M, Fischer D, Fritzsche K, Haass M, Jordan J, Junger J, Kindermann I, Kollner V, Kuhn B, Scherer M, Seyfarth M,

Voller H, Waller C, Herrmann-Lingen C. Position paper on the importance of psychosocial factors in cardiology: update 2013. *Ger Med Sci* 2014;12:Doc09.

17. Theorell T, Emdad R, Arnetz B, Weingarten AM. Employee effects of an educational program for managers at an insurance company. *Psychosom Med* 2001;63:724–733.

18. Nawrot TS, Perez L, Kunzli N, Munters E, Nemery B. Public health importance of triggers of myocardial infarction: a comparative risk assessment. *Lancet* 2011;377:732–740.

19. Mostofsky E, Penner EA, Mittleman MA. Outbursts of anger as a trigger of acute cardiovascular events: a systematic review and meta-analysis. *Eur Heart J* 2014;35:1404–1410.

20. Spindler H, Pedersen SS. Posttraumatic stress disorder in the wake of heart disease: prevalence, risk factors, and future research directions. *Psychosom Med* 2005;67:715–723.

21. Orth-Gomer K, Wamala SP, Horsten M, Schenck-Gustafsson K, Schneiderman N, Mittleman MA. Marital stress worsens prognosis in women with coronary heart disease: the Stockholm Female Coronary Risk Study. *JAMA* 2000;284:3008–3014.

22. Pogossova N, Saner H, Pedersen SS, Cupples ME, McGee H, Hofer S, Doyle F, Schmid JP, von Kanel R. Psychosocial aspects in cardiac rehabilitation: from theory to practice. A position paper from the Cardiac Rehabilitation Section of the European Association of Cardiovascular Prevention and Rehabilitation of the European Society of Cardiology. *Eur J Prev Cardiol* 2015;22:1290–1306.

23. Chida Y, Steptoe A. The association of anger and hostility with future coronary heart disease: a meta-analytic review of prospective evidence. *J Am Coll Cardiol* 2009;53:936–946.

24. Grande G, Romppel M, Barth J. Association between type D personality and prognosis in patients with cardiovascular diseases: a systematic review and meta-analysis. *Ann Behav Med* 2012;43:299–310.