

Position Statement

Position statement of the Argentine Federation of Cardiology regarding psychological stress and its impact on cardiovascular health.

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ABSTRACT

Psychological stress is a clinically relevant and modifiable determinant of cardiovascular risk. This Position Statement of the Young Cardiologist Committee of the Argentine Federation of Cardiology (FAC) synthesizes the evidence and establishes operational recommendations for practice in the Argentine health context.

This statement maintains that systematic stress screening should be incorporated at key moments of the cardiological process (onset of disease, hospitalization due to events and follow-up controls), using validated and brief instruments; that non-pharmacological interventions with empirical support (psychoeducation, cognitive-behavioral therapy, stress management, mindfulness, physical activity) constitute the therapeutic pillar; and that early referral to mental health is essential when the burden of symptoms compromises adherence, safety or quality of life.

Services and managers are urged to organize screening and referral circuits, train teams and monitor process and result indicators. This statement guides professionals, institutions and authorities to integrate Mental Health and Cardiology, promote equity in access and stimulate local research on implementation and outcomes.

INTRODUCTION

In recent decades, understanding the link between mind and heart is no longer just a theoretical field, but has turned into a field with increasing clinical relevance. Nowadays we know that psychological stress (both acute and chronic) not only accompanies cardiovascular diseases, but it may also act as a causal and modulator factor, and also prognostic for its course.

Scientific evidence is conclusive: the impact of mental health on cardiovascular health is circular and bidirectional. Different scientific societies in the world acknowledge this link, highlighting the recent publication of the Guideline of the European Society of Cardiology on Mental Health and Cardiovascular Disease, being one of the most significant landmarks in the integration of mental health into the field of modern cardiology.¹

As cardiologists, we consider that understanding and approaching psychological stress is an essential aspect of providing care for patients, both in the medical office and in more complex scenarios (hospital admission or rehabilitation). In a society characterized by high levels of demand and the growing prevalence of chronic stress in the population, cardiology is responsible for considering this perspective in prevention, diagnosis and treatment.

This position statement attempts to reaffirm the importance of integrating the knowledge of stress and its impact on cardio-

vascular disease as part of the professional competency of contemporary cardiologists. Providing care to the heart also entails providing care to the emotional context influencing it and conditioning it. This document seeks to reinforce this point of view and to promote a more humane and comprehensive practice, and based on evidence.

Scientific or ethical basis

Cardiovascular disease is the main cause of morbidity and mortality in the world. Psychological stress, both acute and chronic, is acknowledged as an independent risk factor, modifiable in its genesis and progression. An early detection of stress in the clinical practice can reduce its impact on cardiovascular health, with positive implications on the health of the population and on health care costs.

This position statement seeks to reinforce the need for a systematic identification and an initial adequate approach by the health care team.^{2,3}

CHAPTER 1: STRESS AND ACUTE ANXIETY

Acute stress is a short-duration response to a sudden or threatening stimulus. Unlike chronic stress, characterized by a prolonged exposition to adverse factors, this happens suddenly and triggers the classical "fight or flight" response by an immediate neurohor-

monal activation. Intense emotions (anger, extreme fear) or unexpected traumatic events (natural disasters) can trigger it.

Its clinical relevance lies in its capacity to trigger major cardiovascular events. Different studies have shown a transient increase in the risk of acute myocardial infarction and sudden cardiac death immediately after intense stress situations. Paradigmatic examples include large-scale natural disasters like earthquakes and tsunamis. Similarly, anger episodes have been associated to an increase in the risk of presenting an acute coronary syndrome within hours after it. Even emotional situations like important sports competitions can increase the rate of infarctions and arrhythmias suddenly and significantly in the population. These findings prove that acute stress is not a benign phenomenon for the cardiovascular system, and that it may trigger acute myocardial infarction, malignant arrhythmias and even sudden cardiac death, even in people with no traditional risk factors.^{4,5,6,7,8}

As to pathophysiological mechanisms, acute stress massively activates the sympathetic nervous system and the hypothalamic-pituitary-adrenal axis. Catecholamine release generates tachycardia, increases blood pressure abruptly, and increases the myocardial demand for oxygen while reducing coronary perfusion. This, added to vagal tone decrease, favors the appearance of myocardial ischemia and ventricular arrhythmias. Furthermore, it has been observed that mental stress can induce transient myocardial ischemia even in the absence of significant coronary lesions, a phenomenon known as mental stress-induced myocardial ischemia, attributable to paradoxical coronary vasoconstriction and endothelial dysfunction. This ischemia occurs with less strain than that induced by exercise, and it is usually silent, making its detection difficult. On the other hand, neurohormonal activation generates a transient prothrombotic state, with greater platelet aggregation and procoagulant activity, which may precipitate atheroma plaques rupture and the subsequent formation of coronary thrombi.^{6,7}

From a clinical point of view, it is crucial to ask about the presence of recent acute stressors. Incorporating psychosocial risk factors in the stratification of cardiovascular risk is advisable, as its impact on morbimortality has already been proven. A directed anamnesis can reveal triggers such as strong arguments, sudden losses and significant scares.^{9,10,11}

The initial management of acute stress in the medical office is mainly non-pharmacological. It is important to educate patients in basic stress control techniques (such as deep breathing, relaxation and mindfulness) and to encourage healthy lifestyle habits (regular physical activity, good rest, an adequate emotional support network). It has been proven that strengthening social support and active strategies of coping can attenuate the impact of stress on cardiovascular health. These interventions contribute to reducing an adverse physiological reactivity to stress and are a first-line strategy in patients with a high load of acute stress.^{8,9,10,12,13,14}

When distress exceeds the capacity of coping or interferes with the cardiological treatment, an early referral to a mental health team should be considered (for instance, psychocardiology programs). An interdisciplinary approach enables a comprehensive treatment and it may improve the prognosis.

To conclude, a proper identification and management of acute stress as a cardiovascular risk factor should be part of the contemporary clinical practice. Approaching these psychosocial factors may not just improve the quality of life of patients, but also contribute to the prevention of major cardiovascular events.

CHAPTER 2: CHRONIC STRESS

Chronic stress emerges from a prolonged exposition to adverse life conditions, such as hostile work environments, financial insecurity, interpersonal conflicts or time limitations. Its definition is more complex than what is commonly expressed, and is not exclusively limited to the duration of the stressor stimulus. It has been demonstrated that this entity is associated, both in cross-sectional and prospective studies, with a greater risk of developing multiple diseases. This link is explained by direct pathophysiological mechanisms, as well as the adoption of little healthy coping strategies, which may negatively impact on general health and reduce life expectancy.^{15,16,17}

In recent decades, evidence has been collected linking psychosocial factors, including stress, with cardiovascular events. Variables such as chronic stress, anxiety and depression are difficult to quantify objectively, which has represented a methodological challenge in clinical investigation. Nonetheless, the INTERHEART study, which evaluated risk factors for acute myocardial infarction (AMI) in 52 countries throughout the world, showed a significant association between perceived psychosocial stress and the risk of AMI. In particular, chronic stress in the home and work showed a strong relationship with cardiovascular events, with an odds ratio (OR) of 2.67.⁸ In regard to depression, a meta-analysis made by Howren et al. found that it is associated to elevated levels of inflammatory markers such C-reactive protein, interleukin-1 and interleukin-6, all of them linked to a greater risk of CAD and cardiovascular mortality.^{18,19}

The pathophysiological mechanisms that link chronic stress with cardiovascular disease include a sustained activation of the sympathetic autonomic nervous system, systemic inflammatory response and vascular dysfunction. Besides these biological processes, chronic stress could be accompanied by risky behaviors, such as smoking, alcohol consumption and sedentary life; risk factors properly established for the development of CAD. Likewise, a strong association has been documented between stress and comorbidities like obesity, diabetes mellitus and hypertension, conditions that increase cardiovascular risk significantly. In this sense, a meta-analysis by Wu et al. showed that a proper control of these comorbidities can partially attenuate the relationship between depression and myocardial infarction or death by coronary cause.²⁰

In recent years, the role of non-traditional risk factors has become relevant in the development of cardiovascular risk factors, particularly those of the psychological and socioenvironmental types. In a systematic review from 2017, the link between chronic stress and CAD, hypercholesterolemia and type 2 diabetes mellitus has been proven. Numerous studies have shown that a low socioeconomic level, poor working conditions and demands related to health care can generate chronic stress, which is associated to a greater risk of cardiovascular events.^{21,22}

TABLE 1.
GAD-2 screening tool

Within the last two weeks, how often have you experienced these feelings?	Not at all	Some days	More than half of days	Almost every day
Feeling nervous, anxious or on edge	0	1	2	3
Not being able to stop or control concerns	0	1	2	3

A score of more than 3 has a positive clinical significance for symptoms of anxiety.
GAD-2: Test of 2 items for generalized anxiety disorder

Financial stress, originated by financial hardships, has been consistently associated to negative effects on health and a higher cardiovascular risk, both in the short and the long term. During the financial crisis in Argentina from 1997 to 1999, the decrease of GDP coincided with an 11.36% increase in mortality by acute myocardial infarction, showing the impact of the socioeconomic context on cardiovascular health.^{23,24}

In terms of occupational conditions, it has been proposed that cardiovascular risk does not depend on a single factor, but on the interaction between high psychological demands, low control on tasks and physiological consequences like the development of metabolic syndrome. This point of view emphasizes the need to approach work-related stress from a multidimensional perspective, transcending the individual characteristics of workers.²⁵

To conclude, chronic stress and the associated emotional factors represent significant determinants in the genesis and progression of CAD. The integration of specific therapeutic approaches for stress management could not only improve the quality of life of patients, but also constitute an efficient strategy in the prevention of major cardiovascular events.

CHAPTER 3: DIAGNOSIS

In any visit by patients, professionals should be open to identifying previously unknown or new symptoms about the state of mental health. It has been verified that health care services for patients with cardiovascular disease sometimes lack the necessary education to identify mental health issues.²⁵

a. Psychometric tests

To facilitate the stress screening of patients, questionnaires can be used, as they are practical and not too time-consuming. Among them, there is the General Anxiety Disorder (GAD) questionnaire, having a high sensitivity and low specificity for the diagnosis of anxiety. It starts with 2 questions, which if positive, continue with the GAD-7 with 7 questions, with greater specificity. In the consensus of Mental Health of the European Society of Cardiology from 2025, it is suggested to perform this questionnaire during the diagnosis of new cardiovascular disease or new cardiovascular event, including the period of admission, with a follow-up that could be yearly or according to the clinical judgment of the intervening health care professionals (Table 1).^{1,26,27,28}

The Perceived Stress Scale (PSS) is another widely used tool, with an appropriate population validation. This scale evaluates the stress perceived in the last month, and on the other hand, the capacity to cope (resilience). It could be self-reported by the

patient. There are 14 questions with a scale of points, from 0 or never, to 4 very often. PSS-10 is a shortened version with 10 questions.^{29,30}

b. Biomarkers

For a biomarker to be used for diagnosis, it should be quantifiable, sensitive and specific. Although some studies have shown a link between stress and the alteration of biomarkers, among them cortisol and adrenaline, the low evidence makes it not to be suggested as a diagnostic method.^{31,32}

CHAPTER 4: THERAPEUTIC MEASURES

Stress management should be considered part of a comprehensive treatment of cardiovascular disease. During the interview, professionals should seek a good communication between patients and physicians, both active and empathetic, to facilitate the detection of psychosocial and emotional factors. Thus, the causes for the problems of patients can be better unmasked, and tools for stress management could be approached. Comprehensive therapeutic adherence and quality of life will improve in turn. An interdisciplinary approach is recommended, to promote healthy habits, relaxation techniques and accompaniment by mental health professionals.

a. Psychotherapy

Psychological therapy guided by a professional has been studied in follow-up programs after cardiovascular events, with good results in terms of disease-health process acceptance, decrease of stressing symptoms and improvement of adherence to treatment of base pathologies. In patients with arrhythmias like atrial fibrillation and patients with implantable cardioverter defibrillators, it showed improvement in quality of life questionnaires.^{33,34,35,36,37,38}

Cognitive behavioral therapy (CBT) has the most evidence. Its approach is on changing negative thought and behavior patterns. Two systematic reviews in patients with CAD showed that CBT can reduce new CV events. There are studies that show that CBT after a CV event decreases the rate of readmission or new CV events. In the studies that did not show a decrease in major cardiovascular events, an improvement in quality of life was observed, both for AF and myocardial infarction. This therapy has indications like treatment in guidelines and consensuses of hypertension, chronic CAD and hypertension. A variable is CBT for groups, where strategies are aimed at the prevention of anxiety, with several protocols with proven efficacy. A small stu-

dy in university students showed faster improvements in issues like depression and anxiety when undergoing group therapy vs individual therapy. Group therapies based on mindfulness also displayed improvement in terms of anxiety and management of negative emotions.^{39,40,41,42,43,44,45,46,47,48,49,50,51,52}

b. Mindfulness and meditation

Mindfulness entails concentration in the present time, by helping cognitive resilience when facing stressor factors, helping emotional regulation. It seeks full attention in the present time, with a kind attitude and no judgement. It is paying attention to the present time, without criticisms. This practice attempts to foster a mental state of openness and acceptance, favoring emotional regulation, stress reduction and a greater feeling of general wellbeing.^{53,54,55}

Therapies based on mindfulness have proven evidence of improvement of quality of life in patients who had a cardiovascular event like myocardial infarction with coronary angioplasty. In these patients, it has been shown that mindfulness helps to control stress and symptoms of anxiety. In cardiac rehabilitation, it was shown that rehabilitation with exercise and mindfulness was better than the former in isolation in terms of personal wellbeing. A reduction in values of blood pressure has been demonstrated, and its use was included in consensuses. Perfectionist personalities, with decrease in HR variability, can benefit from mindfulness.^{46,56,57,58,59,60,61,62}

Meditating focuses on breathing, sounds or feelings to reduce levels of stress and its negative effects. Meditating entails having your mind focused and reaching or looking for inner peace. Its efficacy has been proven both in primary prevention (decrease in CV events) and in secondary prevention, both with mindfulness and with meditation. Therapies like yoga and listening to classical music can also be used as treatment, due to its proven cardioprotective effect.^{62,63,64,65,66}

To conclude, all of the evidence available supports mindfulness and meditation like an efficient, safe and potentially cardioprotective strategy. Its implementation in rehabilitation and secondary prevention programs allows to optimize the comprehensive management of patients with cardiovascular disease, approaching psycho-emotional factors influencing on clinical evolution.

c. Prescription of social activities

Prescription of social activities means providing people with personalized treatments extending beyond the traditional pharmacological treatment, aimed at resources and activities in the community. They improve adherence to the usual cardiovascular treatment, reduce symptoms of stress and anxiety, and improve quality of life questionnaires. Between the prescribed activities that have been studied, we find dancing, climbing, cooking classes, gardening. Social interventions that include professionals are more effective to improve blood pressure values and adherence to physical activity. Activities such as gardening, exercising in green areas and walking in nature proved to be efficient to reduce blood pressure values and to moderate anxiety scores.^{67,68,69,70,71}

d. Modifications in lifestyle

A holistic treatment should include lifestyle modifications to reduce cardiovascular risk, improve mental health state and increase adherence to treatment. Physical activity generates release of endorphins, which among other neuroactive substances, improve mood and reduce stress, and is particularly useful in patients with CV disease.^{72,73}

Interventions in diet have twice the result in improving mental health and CV prevention goals. Diets with a high consumption of sugar, refined carbohydrates and saturated fats are linked to an increase in anxiety. In this aspect, there should be more studies linking diets generating low arterial inflammation and a significant reduction in stress.^{74,75}

Quitting smoking has proved that CBT associated to medication or nicotine was better than medication alone to achieve smoke abstinence.⁷⁶

e. When to refer. Pharmacological treatment

In the 2025 ESC position statement on Mental Health and Cardiovascular Disease, it is advised to create an interdisciplinary cardiology-mental health team for a comprehensive approach of patients. When faced with cases of severe mental disease (anxiety, depression) or suspicion of severity, diagnosed by the abovementioned questionnaires (Chapter 3: diagnosis), a referral to mental health teams is suggested for an initial care by a specialist.¹

Use of benzodiazepines presents levels of overindication and an excessive use all over the world, particularly in the elderly. The indication of benzodiazepines relates to an increase in all-cause mortality. This position statement defines indication of pharmacological treatment as out of reach, and mainly advises against using it as first line, being saved only for moderate-severe scenarios of anxiety and depression.^{77,78,79}

CHAPTER 5: OFFICIAL POSITION

As an emerging cardiovascular risk factor, and with growing scientific evidence, it is considered that in medical practice, primary care professionals should have, among their tools, the capacity to detect psychological stress in consulting patients.

Simultaneously, taking into consideration the high prescription of benzodiazepines, we advise against their use as first line systematically.

CHAPTER 6: ETHICAL CONSIDERATIONS AND CONFLICTS OF INTEREST

We state there were no conflicts of interest to generate this medical position statement.

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