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Mental health and management of emotions: impact on the cardiovascular health of women

Salud mental y gestión de emociones: impacto en la salud cardiovascular de la mujer

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INTRODUCTION

Cardiovascular disease (CVD) is the leading cause of death in women, and this entity has increased in recent decades.

It has been established in recent years that psychological factors are closely related to cardiovascular (CV) disease. The link is bidirectional; psychological factors may be shared in certain CV diseases (CVD), conditioning worse outcomes. On the other hand, psychological conditions may pre-exist and favor the development of CVD. Additionally, treatment for mental health disorders may present CV risk due to side effects or interactions with other drugs.

Evidence shows that patients with significant psychological disorders, such as depression, have higher morbidity and mortality than the general population.[1] A recent meta-analysis of 203 publications from 29 countries on six continents found a relative mortality risk of 2.22 for people with mental disorders. Approximately 8 million deaths worldwide (14.3%) may be associated with mental disorders.[2]

In women, the incidence of mental disorders is more frequent and observed at an earlier age; this trend was exacerbated during the COVID-19 pandemic, where Argentina reached the most significant change in prevalence (36.4%) in Latin America for both depression and anxiety.[3]

In the female group, depression without CVD is a predictor of CV death (relative risk 1.5); in young women, the risk of ischemic heart disease is 15 times higher (14.57 [95% CI, 2.65-80.10]).[4] In the presence of CVD, such as myocardial infarction (MI), depression is two times higher in women than in men, increasing the risk of new CV events, lower therapeutic adherence, and worse prognosis. Anxiety plays a similar role, with a higher prevalence in women, especially when CVD coexists, doubling the risk of new CV events such as reinfarction, *tako-tsubo* cardiomyopathy, or coronary artery dissection with myocardial ischemia induced by mental stress.[5]

The differences between men and women are not limited to the biological sphere. There are also differences at the emotional and sociocultural levels. Women's emotional and psychic worlds are crossed by hormonal variations throughout their lives that affect the central nervous system (CNS) and psychic states. In addition to protecting the CV system, estrogens have an activating action, improving mood through excitatory amino acids such as glutamate and aspartate. Progesterone, for its part, has an effect similar to that of anxiolytics by facilitating GABAergic action. Both hormones remain in balance, and when this is altered, symptoms of the depressive-anxiety spectrum appear. In addition, neurocognitive functions are shaped by the culture of different societies throughout history.[6]

Over the last decade, key findings allowed us to understand the importance of psychological well-being and the social determinants of health in maintaining or improving CV health. Specific characteristics associated with positive

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psychological health, such as optimism, purpose in life, and resilient coping (among others), are related to good CV health. In contrast, higher psychosocial stress and depression are associated with poorer CV condition.

A recent AHA scientific statement (2021) reviewed a large number of studies addressing a wide range of positive (optimism, a sense of purpose, happiness) and negative (stress, depression, anxiety) psychological health factors and their significant associations with CV health and CVD risk.[7]

Poverty and the resulting psychosocial sphere affect women more than men, with a 25% greater probability of having a heart attack than their male peers. This condition is

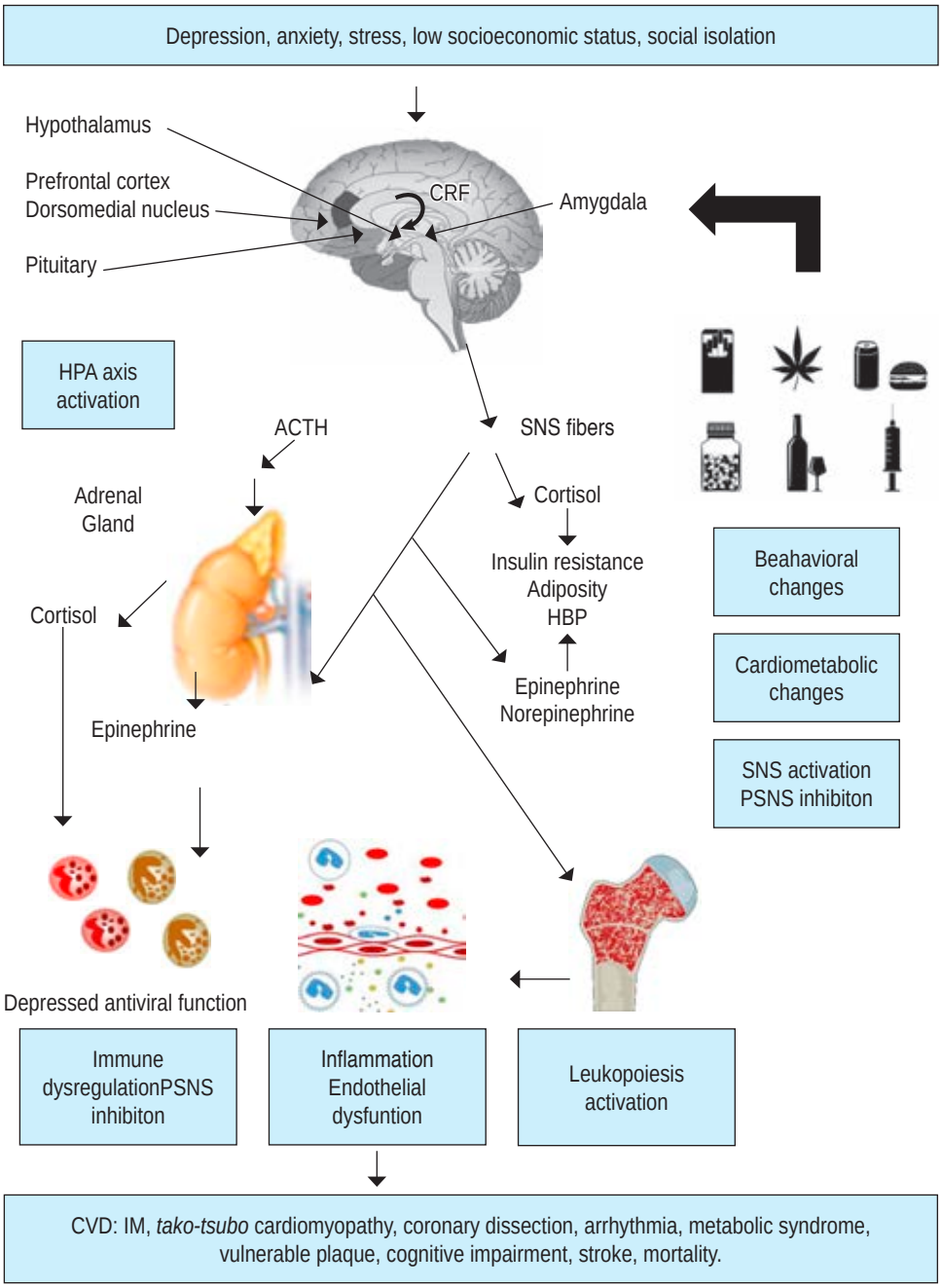

Figure 1:

Pathophysiological and behavioral mechanisms between psychosocial determinants and cardiovascular disease.[9]
CRF = corticotropin-releasing factor. HPA = Hypothalamic-pituitary-adrenal axis. ACTH = adrenocorticotropic hormone. SNS = sympathetic nervous system. PSNS = parasympathetic nervous system. HBP = high blood pressure. CMP = cardiomyopathy. CVD = cardiovascular disease. MI = myocardial infarction.

Table 1: Treatment and recommendations.

Stress and anxiety	I	IIa	IIb	III
Non-pharmacological approach[10-15]				
Refer to programs based on positive psychology		A		
Meditation		B		
Mindfulness		B		
Physical activity and a healthy diet	A			
Pharmacological approach[12,13]				
Benzodiazepines (clonazepam, lorazepam, alprazolam) Examine drug-drug interaction with statins	B			
Depression				
Non-pharmacological approach[10-15]				
Cognitive behavioral therapy, behavioral activation, and interpersonal psychotherapy	B			
Mild-moderate depression: cognitive-behavioral and problem-solving therapy				
Moderate to severe depression: cognitive-behavioral and interpersonal therapy				
MBTC: Mindfulness-based cognitive therapy (relapse prevention)		B		
Physical activity and a healthy diet	A			
Pharmacological approach[12,13]				
CVD patients: use of serotonin reuptake inhibitors: escitalopram, sertraline	B			

CVD = cardiovascular disease.

more prevalent in Latin America than in the rest of the world.

In women, coronary syndromes without obstructive lesions are frequently associated with adverse psychological and sociodemographic profiles with a worst course than expected.

The mechanisms that favor psychosocial factors have two main conditioning factors[8] for the increase in cardiovascular events:

1. Intrinsic: alterations in emotional factors, affective disorders (anxiety/depression), hostility, and tendency to anger.
2. Extrinsic: chronic stressors such as lack of social support, low socioeconomic status, work stress, partner stress, and caregiver stress.

Pathophysiology

The pathophysiological mechanisms involve the biological and behavioral spheres in depression, anxiety, and stress with the activation of various systems such as the hypothalamic-pituitary-adrenal (HPA) axis, the sympathetic nervous system (SNS), and renin-angiotensin-aldosterone. The consequences are inflammation, oxidation, and hemostatic and vascular flow alterations. All this leads to CVD and risk factors such as a sedentary lifestyle, drug use, inadequate diet, and lack of pharmacological adherence *(Figure 1)*.[9]

Diagnosis

The AHA recommends screening all CVD patients with at least the 2-item Patient Health Questionnaire (PHQ-2). Those who test positive on the PHQ-2 should be evaluated with the 9-item PHQ-9 to promptly detect patients with depressive spectrum mood disorders.[10] On the other hand, the WHO has created an application to detect mood disorders, mental, neurological, and substance use for personnel not specialized in mental health that facilitates the diagnosis and management of these patients *(Table 1)*.[11]

CONCLUSIONS

The practice of cardiology medicine imperatively requires gender awareness, given that the evidence shows the impact of psychosocial factors on women's cardiovascular health. Currently, we do not have risk calculators that guide behaviors, so it is necessary to include these factors in the individual risk assessment and implement education campaigns for the general population and the medical community. It depends on this that we can all develop a health system that considers women as part of a whole and not a simple piece of a whole.

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