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Editorial

Psychosocial sphere of congenital heart disease patients and the costs of forgetting about it

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Patients with congenital heart disease (CHD) compose a unique population for a number of reasons. Many of them have faced several major surgeries since early childhood and have required medical reviews and interventions throughout their lives. Moreover, functional capacity can be restricted due to their condition, having a direct impact on daily activities. Survival and quality of life are affected in comparison with general population [1]. Besides, neurodevelopmental problems have been described in relation to CHD and therapeutic procedures [2]. With this complex scenario, it's easy to understand that psychological aspects play an important role in these patients. New AHA guidelines do acknowledge the importance of evaluating for depression and anxiety [3]. However, data are scarce, especially in adults, few studies have addressed this issue and practical recommendations are vague.

In this number of the *International Journal of Cardiology*, Benderly et al. [4] have done an excellent job analysing the prevalence and significance of depression and anxiety in CHD patients, supported by a large number of patients with a wide variety of conditions. The study included 8334 patients insured by a large healthcare organization in Israel over a 5-year period.

The first significant finding is that the prevalence of depression and anxiety in this setting is as high as 35%, more than one third of patients.

Previous reports have found an incidence of depression ranging from 9 to 30% [5]. Diller et al. reported 3.3% of patients receiving antidepressant drugs [6], likely reflecting under-diagnosis and undertreatment. They also found a higher risk of complications, especially in males. Kovacs et al. [7] pointed out that almost half of the patients could meet diagnostic criteria for at least one lifetime mood or anxiety disorder, the majority being untreated. One of the pitfalls is that different methods for diagnosis have been used. In that sense, self-reported symptoms are not accurate enough.

This becomes more relevant when we get to the main conclusion of the study: after multivariate adjustment, patients affected by these conditions have greater healthcare utilization including hospital admissions (relative rate (RR) 1.18–1.47), primary care visits (RR 1.31–1.36), cardiology visits (RR 1.07–1.22) and emergency department visits (RR 1.43–1.6), as well as mortality (RR 1.1–1.4).

This could be either a consequence of depression itself or could just reflect that patients with more advanced disease, frequent admissions and end-stage heart failure are more prone to depression. The direction of the interaction (and thus causality) cannot be established given the retrospective nature of the study, as the authors actually mention.

The magnitude of the association, however small (with RR ranging from 1.1 to 1.6), is still relevant from a clinical and a socio-economical perspective. An increased number of outpatient visits and hospital admissions carries significant costs. It is important to outline that, despite patients with depression or anxiety being older, higher rates of healthcare utilization occurred among younger patients.

Interestingly, complexity of the cardiac condition didn't affect the rate of depression. Actually, atrial septal defect was the most common malformation also among patients with depression/anxiety. This fact would suggest that not only the sickest patients or those with more advanced disease are more likely to suffer depression.

Various mechanisms by which depression can affect prognosis have been proposed, including adherence to treatment, compliance with medical visits, development of metabolic disorders and medication side effects, among others.

A report in adult CHD patients found that depressive symptoms were linked to a 3-fold increase in self-reported alcohol consumption and 5-fold increase in tobacco use [8]. By addressing the psychological sphere, we may help to prevent the extra burden of acquired heart disease, with prognostic implications of its own.

The study has some important limitations. Data collection system (based on numerical code analysis) and the fact that this data comes from only a portion of the population of a single country implies a risk for bias. Retrospective design limits the interpretation of the results and impedes establishing a causal relationship. One of the main difficulties when performing a study of such characteristics, is that depression

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and anxiety are such complex concepts that multiple variables can act as confounding factors and simplistic conclusions must be avoided.

The relationship between depression and cardiovascular disease (CVD) has been identified in other settings such as coronary artery disease, stroke, or peripheral artery disease [9]. This link is bidirectional: patients with CVD have more incidence of depression, whereas patients with depression are at higher risk of developing CVD and additionally have worse outcomes when compared to non-depressed individuals. The effect of depression on prognosis is also well described in the general population [10].

How to address this problem doesn't have an easy answer. On the contrary, it raises many questions. Is there something that we as cardiologist, with little formation in that field, can do in our daily practice? Would specific multidisciplinary programs be cost-effective? Or would they further increase the costs and number of visits? Is cardiac rehabilitation a useful tool in this setting?

It remains unclear whether a structured plan of psychological care in CHD patients could improve adherence to treatment, mental health, reduce over-use of medical facilities and even decrease mortality.

As previously discussed, the context of CHD is different to other types of CVD and chronic conditions. Extrapolation of diagnosis and management strategies from other populations warrants evaluation. Nevertheless, it is certainly a conversation worth starting given the potential benefit for the quality of life and general well-being of these patients.

In conclusion, the study by Benderly et al. points out an outstanding problem among CHD patients such as psychological issues, often underattended, that should be a matter of concern and an additional therapeutic target. Several questions remain unanswered and further investigations in the field are needed in order to provide evidence-based recommendations.

Conflict of interest

The authors report no relationships that could be construed as a conflict of interest.

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