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Mental Health and Psychosocial Challenges in the COVID-19 Pandemic: Food for Thought for Cardiovascular Health Care Professionals



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Background

The coronavirus disease (COVID-19) pandemic has produced substantial health challenges from the perspective of both its direct health complications and the disruption to delivery of standard care for individuals with a range of acute and chronic health issues. In parallel, the widespread application of social isolation initiatives in most countries raises the potential for significant mental health consequences and psychosocial impacts. This has major implications for cardiovascular health care professionals and the management of their patients.

Challenges

The COVID-19 pandemic and associated physical isolation practices are likely to result in a range of mental health and psychosocial challenges. In addition to an increasing incidence of anxiety, depression, suicidal ideation and post-traumatic stress, the pandemic may also witness an increase in substance abuse, domestic violence and relationship discord. The consequences of these complications will be further magnified, when considering their potential effect on cardiovascular disease and its management.

Purpose

This commentary aims to summarise some of the potential mental health and psychosocial challenges that may arise in the setting of the COVID-19 pandemic.

Introduction

The coronavirus disease (COVID-19) pandemic has rapidly produced substantial disruption worldwide. In addition to the health complications of those with COVID-19 infection, the introduction of a raft of public health measures, including physical distancing legislation in many countries, has broadened the impact of the pandemic to a point where it will “touch” all members of society. Health care professionals have become increasingly cognisant of both the

direct cardiac complications of COVID-19 and the potential impact on the standard acute and chronic management of a range of cardiovascular disorders. In parallel, the pandemic and physical isolation has the potential to produce a vast array of mental health and psychosocial challenges, which may impact both patients and their families. Further, depression, anxiety, post-traumatic stress disorder, and other related mental illnesses have been shown to have direct and indirect effects on acute and chronic cardiovascular disease, and its pathophysiological perturbations [1,2].

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Challenges From a Mental Health and Psychosocial Perspective

Exposure to extreme mental and emotional stress such as natural disasters, trauma, war and conflict are well established risk factors for incident Atherosclerotic Cardiovascular Disease (ASCVD) [3]. Early evidence of the direct and indirect psychological consequences of COVID-19—both from the infectious disease and associated public policy, like quarantining—is emerging [4]. Data from other pandemics such as Severe Acute Respiratory Syndrome (SARS) show that infectious disease outbreaks are associated with considerable fear in the community largely due to the evolving nature and uncertainties, particularly where risk of illness and death are substantial [5]. Such anxieties can motivate behavioural changes that can shape population cardiovascular health in ways that may have unintended consequences. A clear example is the global disengagement with the health care system or treatment non-adherence since the introduction of public health containment strategies (e.g. social distancing, quarantine). A substantial decline in accident and emergency department visits has been observed by as much as half in England [6] as well as in Australia, North America and Europe [7]. In Spain, a significant decrease in the number of cardiology procedures occurred over the post-COVID outbreak (diagnostics [−57%], percutaneous coronary intervention [PCI] [−48%], structural interventions [−81%] and PCI in ST elevation myocardial infarction [STEMI] [−40%]), representing a potential excess morbidity and mortality risk [8].

Individuals with pre-existing ASCVD are at elevated risk of contracting COVID-19 and if contracted, more than double the risk of serious disease [9], with mortality as high as 20% [10]. In addition, COVID-19 can aggravate damage to the heart. Patients who develop evidence of myocardial injury seem to be more than 10-times more likely to require admission to intensive care units. This excess risk, combined with concerns relating to physically attending hospitals where there may be active COVID-19 cases, may exacerbate the fear, anxiety, vulnerability, feelings of helplessness, hopelessness, trepidation, or thoughts of mortality experienced by many post-acute coronary syndromes (ACS) [1]. Anticipation of loss can ultimately result in the development and/or progression of anxiety. Perceived or actual loss can result in depression in patients who experience a cardiovascular disease (CVD), the prevalence of which is two to three times that of matched controls in the general community [2]. Data from Australian and New Zealand patients with stable coronary artery disease show that, compared with patients with no distress, patients with even moderate levels of distress had a higher risk of both cardiovascular (CV) death (adjusted HR 3.94, 95% CI 2.05–7.56, $p < 0.001$) and all-cause mortality (adjusted HR 2.85, 95% CI 1.74–4.66, $p < 0.001$) [11]. The American Heart Association recognises depression as formal risk factor for poor CV prognosis in patients with established disease. In Australia, a simple tool

for depression screening, such as the Patient Health Questionnaire-2 (PHQ-2) or the short-form Cardiac Depression Scale (CDS), is recommended for use with patients with established CVD [12].

Physical and social isolation for an unknown or indefinite period of time for these patients, especially the elderly, can induce rumination and maladaptive thought processes and contribute to feelings of loneliness. In China, life satisfaction declined over the COVID-19 outbreak period [13]. Pessimism and loneliness have established cardiovascular implications, and are associated with a range of mechanisms associated with the development and progression of atherosclerosis, including increased peripheral vascular resistance and elevated blood pressure [14]. In animal and human studies, social isolation has been demonstrated to associate with greater development and progression of atherosclerosis [15–18]. In fact, the magnitude of this influence on CVD (and mental health outcomes including suicide) is equivalent to that of smoking [19]. This influence may exert itself via various bio-behavioural pathways including the absence of oxytocin and serotonin mediated exposures of companionship, affection, belongingness and intimacy [20]. Similarly, an absence of, or reduced assistance with practical tasks associated with disease self-management (e.g. filling scripts, grocery shopping) can compromise, or make difficult, cardio-protective medications and health behaviour regimens.

Conversely, dense living environments or proximity to family members over a prolonged period may inhibit independence and self-reliance or, in some cases, incite conflict. A recent review concluded that periods of quarantine can be associated with anger, frustration, post-traumatic stress symptoms, confusion, commonly owing to longer periods of quarantine, infection fears, boredom, financial loss, and stigma [21]. Periods of extreme stress, including natural disasters or economic hardship, present vulnerabilities that can exacerbate family violence including alcohol, drug taking and financial stressors [22]. Both family violence perpetration and victimisation, and maladaptive or dysfunctional relationships, directly impact one's CV system and likely elevate one's long term CVD risk [23]. Maladaptive behavioural responses, such as neuroticism or extreme hypervigilance during infectious disease outbreaks, may exaggerate or induce compulsive behaviour [24]. This may include obsessive monitoring of media, social media, hand washing or other compulsive behaviours. Case reports have emerged documenting brief psychotic episodes during the COVID-19 outbreak [25]. Individuals with high external locus of control and externally driven thought processes (e.g. “why do things always happen to me?”, “I have little control over my future”) tend to predict coping strategies and historically poorer survival after ACS.

Paradoxically however, these individuals may be more likely to conform to public health messaging [26], for example immunisation programs [27]. During the H1N1 pandemic, a higher state of anxiety and greater trust in authorities were associated with adherence to recommended

behaviours, as were greater levels of perceived susceptibility and disease severity, and belief in the effectiveness of recommended behaviours for disease prevention [28]. This further highlights the complexity of potential effects in the setting of a global pandemic.

Understanding the mental health implications of this pandemic moving into the post-COVID era will be critical in the context of ASCVD management and prevention. According to New York Fire Department data, there have been three times the number of emergency call outs for fatal and non-fatal cardiac arrests and four times the number of cardiac deaths in the last few months compared with this time last year [29]. Australian health services may see a similar upswing of ASCVD presentations characterised by greater disease severity and progression owing to the current underutilisation or avoidance of the health care system. COVID-19 related anxieties or unwillingness to “burden” the health care system may persist for individuals with established ASCVD, resulting in continued health service avoidance, disengagement and non-compliance with self-management regimens. Specifically, this could result in missed cardiovascular or psychiatric medication scripts, referrals to psychologists, specialists or other allied health professionals that promote CV health and self-management and adherence to dietary, smoking or physical activity recommendations. Data from the SARS pandemic show that individuals who are the subject of fear and stigmatisation (in this context, Asian Australians) are also at higher risk of disengagement and may require targeted strategies for help seeking in relation to health care [5]. Other issues may present to compromise non-adherence to self-management regimens in those with ACVD including supply chain issues with medications or foods, and fears regarding hitherto unfounded safety claims (e.g. angiotensin converting enzyme inhibitors/angiotensin receptor blockers [ACE/ARBs]). Difficulties in maintaining secondary prevention behaviours may be further pronounced during winter months during which time limited sunlight and poor weather may increase risk of depression and Seasonal Affective Disorders in some settings [30]. Increasing caregiver burden that traditionally falls on women may increase marital pressures. Separations and divorces could plausibly spike, a risk factor for CVD mortality in men [31]. Life events characterised by extreme distress or grief including relationship breakdown can increase risk of Takotsubo cardiomyopathy (‘broken heart syndrome’) particularly for women aged 55years or older [32].

Socioeconomic disparities present during, and in the aftermath of, pandemics and natural disasters appear to enhance the social gradient of CVD. Given the close correlation between Global Domestic Product and life expectancy [33], the threat of a global economic depression exerts influence on population health. The deleterious impact of high job insecurity on health and well-being are comparable to the effects of unemployment [34]. Financial and economic hardship is not only associated with ASCVD, depression, behaviours that elevate one’s risk like alcohol use, smoking,

drug taking, marital pressure and suicide. Unemployment, homelessness, disengagement with health care system, transiency, food insecurity and the digital divide may further enhance disconnection and loneliness. Data from China show that individuals with serious psychiatric needs were highly vulnerable to contracting COVID-19 [4]. Innovative approaches to re-engaging and monitoring at-risk populations, and to providing and maintaining employment, housing, relationship and social networks, will be critical moving forward.

For individuals who recover from COVID-19 and the severe acute respiratory syndrome, recovery will need to occur, in parallel, from clinical CVD and especially acute decompensated heart failure (ADHF). This has enormous implications for the psychosocial sequelae and rehabilitation of these patients. Because of the co-morbid prevalence of COVID and CVD, especially ADHF, patients need to recover from two entities in parallel, resulting in complexity for patients, sociologically significant others and health professionals. It has been known for many years that cardiac rehabilitation, based on exercise training in a group setting, results in improved psychosocial outcomes, particularly less anxiety and depression [35]. It is unclear as to whether the benefit is primarily from the exercise itself or the accompanying group dynamics that can foster camaraderie as a source of psychological support [36]. The inclusion of psychosocial interventions as part of routine heart health checks, cardiac rehabilitation, and the promotion of online and telephone mental health support services in these settings is warranted. Early evidence from the Chinese experience of COVID-19 suggests that the establishment of external emergency mental health expert teams in other provinces and provision of online public education, psychological counselling, and hotline services may have helped buffer some of the negative mental health outcomes associated with COVID-19 [4]. In Australia and New Zealand, this approach is gaining traction, with governments announcing funding support to expand mental health services, including greater investment in hotline services in response to 25% of calls in the past fortnight being COVID-19 related, as well as phone and video support for people with serious mental illness (SMIs) and extra youth and adult acute mental health beds [37,38]. The need to expand upon and support these services in the post-COVID era, especially in rural and remote settings, will play a critical part of CVD and related Non Communicable Disease prevention and management across Australia and New Zealand.

Conclusion

Effective introduction of physical distancing protocols has the potential to substantially limit the spread of COVID-19 throughout the community and spare the health care system from being overburdened beyond its capacity to care for COVID-19 associated complications. However, the mental health and psychosocial sequelae of the COVID-19 pandemic

are likely to be considerable and will impact our approach to effective delivery of cardiovascular health care for many months to come.

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