Challenges and opportunities: Cardiovascular care and COVID-19

Submitted to the Standing Committee on Health

Study on Canadian response to the COVID-19 pandemic

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Canadian Cardiovascular Society
Leadership. Knowledge. Community.

Introduction

Heart disease is a leading cause of death and disability in Canada.[1] About 2.4 million (1 in 12) Canadian adults aged 20 years and older are living with ischemic heart disease, and another 669,600 (3.6%) Canadian adults aged 40 years and older are living with heart failure.[2]

The COVID-19 pandemic has had serious direct and indirect consequences for Canadians living with heart disease and those who develop cardiac complications stemming from infection. It has illuminated critical gaps in health, health care, and our ability to effectively manage Canadian health systems to achieve the best outcomes for patients.

As the national, professional association that represents cardiologists, cardiac surgeons, and scientists, the Canadian Cardiovascular Society (CCS) highly values this opportunity to communicate the scale of the challenges to cardiovascular care that the pandemic has exacerbated, and propose recommendations to resolve these challenges as we move through the first wave of the pandemic and into a post-COVID-19 future.

Background

As the spread of COVID-19 has progressed, we have learned important effects of the virus on cardiovascular health. Firstly, people with pre-existing heart conditions are particularly vulnerable to the virus and face a higher risk of dying from COVID-19.[3]

Emerging data show that people with heart conditions are four times more likely to die from the virus than patients with no underlying conditions.[4] Some COVID-19 patients had multiple heart conditions which may have made them more vulnerable to the virus. More specifically:

- Up to 1 in 3 (15%-31%) had high blood pressure;[5] and
- More than 1 in 3 (35%) had multiple underlying conditions including high blood pressure, coronary heart disease, and cardiomyopathy.[6]

People with high blood pressure have nearly 2.5 times higher chances of dying if they contract COVID-19 as compared to those with no underlying conditions. Like other respiratory syndromes such as influenza (flu), COVID-19 can cause injury to the heart, even in patients without a history of heart disease, resulting in poorer outcomes.[7, 8] The mortality rate among patients who suffer a cardiac injury while in hospital for COVID-19 is 51% (1 in 2 people).[8]

Consequences

The direct and indirect consequences of COVID-19 are compromising patient care and leading to avoidable loss of life:

"Missing" Heart Attacks

Health professionals across the country are observing a worrying decrease in the number of people arriving at hospital for medical emergencies such as heart attacks and stroke. Emerging data from

several regions is confirming that fewer people are seeking emergency medical care:

- Between March 6 to April 12, 2020, urban Vancouver reported a drop of over 40% in STEMI (a very serious type of heart attack) patient presentations compared to the same time last year. (*Source: Vancouver Coastal Hospital*).

- In the same timeframe, Ontario's Cardiac Centres have seen a nearly 30% decrease in STEMI visits compared to the same time last year (*Source: CorHealth Cardiac Registry*).

- Canada is not unique. Other countries have also reported people delaying or avoiding treatment for medical emergencies such as heart attack or stroke including a 38% reduction is STEMIs in US hospitals,[9] and a 40% reduction in Spain.[10]

These estimates raise concerns about the number of patients whose care has been postponed during the pandemic and the number of deaths that have occurred due to untreated emergencies or delays in treatment for heart attacks.

Rapid growth in cardiac waitlists

National modelling shows the preparations by hospitals for a COVID-19 surge led to a slowdown in cardiac procedures. This reduction has exacerbated a long and growing backlog of patients waiting for valve replacements (i.e., TAVI) and various heart rhythm procedures. Once access to care begins to gradually open, we can expect these patients to present in large waves and in worse health compared to if their chronic and acute heart conditions were treated in a timely way and more actively managed. Additionally, it will take time to bring these already excessive wait times back to pre-COVID-19 levels and patient outcomes will be worse.

As we reflect on the health system response to the first wave of the pandemic, we must examine the unintended consequences, determine what went wrong, and decide how to balance foregoing procedures for cardiac patients, to make resources available to treat COVID-19 patients. We must have data and data-informed solutions in place to reduce the impact of a national health crisis on cardiac and other patients, while still being able to provide crisis-related care to those affected. In the current situation, where COVID-19 patients have been prioritized, the consequences for other patients has been too high. Without data, we cannot do better the next time.

Decision-making without real-time data

While health services are noting dramatic changes to rates and types of care, we are challenged by a lack of real-time data to make regional comparisons and evidence-informed decisions. Unfortunately, few have been able to accurately estimate the extent to which COVID-19 will affect rates of incidence, duration, and recovery among the Canadian population. Even less is known about how the impact of COVID-19 will vary from hospital to hospital and from province to province.

Not only is this data necessary to address the immediate care demands of the pandemic, but it gives us the evidence we need to make informed and targeted improvements to health system delivery models based on what we learn from the crisis response.

Ethics of care

The COVID-19 pandemic has forced health care providers to grapple with their responsibility to provide care during a pandemic and determine the aspects of care that are of greatest priority.[11] These decisions are fraught with complexity and cannot be made in a vacuum. They require broad stakeholder engagement and the establishment of frameworks for fair and equitable decision-making in alignment with public health officers and regional health authorities who oversee the broader health systems. The CCS has had discussions amongst our members about models for ethical decision-making in times of crisis[4], and we look forward to contributing to constructive debate and offering guidance on these policy issues as the opportunities arise.

How we're responding

In this unprecedented time, the CCS has rapidly responded to the impacts of the pandemic by:

- Providing clinical guidance for our members and community-based practitioners (GPs, nurses, pharmacists, technologists, etc.) on how to adapt standard heart care practices to provide evidence-based care and treatment for heart patients during the COVID-19 pandemic. This has included collaborating with 15 major North American cardiovascular societies* to establish and jointly publish recommendations on how to safely reintroduce invasive cardiovascular procedures and diagnostic tests during the COVID-19 pandemic.

- Encouraging patients to go to the hospital if they are experiencing serious heart symptoms and clarifying that the risk of ignoring these symptoms and/or avoiding the hospital during the pandemic is greater than the risk of COVID-19 exposure at the hospital.

- Curating resources and establishing platforms that ensure our members have the tools to take care of themselves and are well-equipped to face unprecedented professional and personal demands as front-line care providers (see www.ccs.ca).

- Funding seed grants for health research related to the impact of COVID-19 on cardiovascular patients.

- Facilitating the sharing of local and provincial health information among stakeholders, wherever possible, to inform care and policy decisions.

- Offering information and support to local, provincial, and national decision-makers to facilitate evidence-informed decision-making in response to the COVID-19 crisis.

* American College of Cardiology, American Heart Association, Canadian Cardiovascular Society, Canadian Association of Interventional Cardiology, Society for Cardiovascular Angiography and Interventions, Heart Valve Society, American Society of Echocardiography, Society of Thoracic Surgeons, Heart Rhythm Society, Society of Cardiovascular Computed Tomography, American Society of Nuclear Cardiology, Society of Nuclear Medicine and Molecular Imaging, Society for Cardiovascular Magnetic Resonance, Society of Nuclear Medicine, Canadian Heart Failure Society, and the Canadian Society of Cardiac Surgeons.

Our recommendations

The COVID-19 pandemic offers us the opportunity to refine and redesign our health systems if we choose to capitalize on it. Cardiovascular specialists are eager to support this undertaking in order to provide more effective and efficient care, and enable better outcomes for patients.

To best serve Canadians' heart health now and in the future, the CCS is:

1. Asking for the government to help us to ensure Canadians recognize that emergencies are still emergencies. The signs of serious heart problems cannot be ignored. Canadians should call 911, their doctor, or their provincial/territorial help line and seek care when necessary.

2. Offering to work with this government to solidify its role in establishing national data that enables informed decision-making when it comes to providing cardiovascular patient care in stable times and in times of crisis.

About Us

The Canadian Cardiovascular Society (CCS) is the national, non-profit professional organization that represents more than 2,200 cardiologists, cardiac surgeons, and scientists across Canada. Established in 1947, the CCS supports heart care specialists by setting national standards, sharing knowledge and informing policy. For more information, visit *www.ccs.ca*.

[1] Public Health Agency of Canada. Heart Disease in Canada. Available at: https://www.canada.ca/en/public-health/services/publications/diseases-conditions/heart-disease-canada.html. Accessed on May 6, 2020.
[2] Public Health Agency of Canada. Report from the Canadian Chronic Disease Surveillance System: Heart Disease in Canada. Available at: https://www.canada.ca/en/public-health/services/publications/diseases-conditions/report-heart-disease-Canada-2018.html. Accessed on May 6, 2020.
[3] Centers for Disease Control and Prevention. Preliminary Estimates of the Prevalence of Selected Underlying Health Conditions Among Patients with Coronavirus Disease 2019 – United States, February 12-March 28, 2020. Available at: https://www.cdc.gov/mmwr/volumes/69/wr/mm6913e2.htm. Accessed on May 6, 2020.
[4] Chen R, Liang W, Jiang M, et al. Risk Factors of Fatal Outcome in Hospitalized Subjects With Coronavirus Disease 2019 From a Nationwide Analysis in China. CHEST. (2020) https://doi.org/10.1016/j.chest.2020.04.010
[5] Clerkin KJ, Fried JA, Raikhelkar J, et al. Coronavirus Disease 2019 (COVID-19) and Cardiovascular Disease. Circulation. (2020) https://doi.org/10.1161/CIRCULATIONAHA.120.046941
[6] Lippi G, Wong J, Henry BM. Hypertension and its severity or mortality in Coronavirus Disease 2019 (COVID-19): a pooled analysis. Pol Arch Intern Med. (2020) https://doi.org/10.20452/pamw.15272
[7] Guo T, Fan Y, Chen M, et al. Cardiovascular Implications of Fatal Outcomes of Patients With Coronavirus Disease 2019 (COVID-19). JAMA Cardiol. Published online March 27, 2020. doi:10.1001/jamacardio.2020.1017
[8] Shi S, Qin M, Shen B. Association of Cardiac Injury With Mortality in Hospitalized Patients With COVID-19 in Wuhan, China. JAMA Cardiol. Published online March 25, 2020. doi:10.1001/jamacardio.2020.0950
[9] Garcia S, Albaghdadi MS, Meraj PM, et al. Reduction in ST-Segment Elevation Cardiac Catheterization Laboratory Activations in the United States during COVID-19 Pandemic. J Am Coll Cardiol (2020) https://doi.org/10.1016/j.jacc.2020.04.011.
[10] Rodriguez-Leor O, Cid-Alvarez B, Ojeda S, et al. Impacto de la pandemia de COVID-19 sobre la actividad asistencial en cardiología intervencionista en España. Rec: Interventional Cardiology (2020) https://doi.org/10.24875/RECIC.M20000120.
[11] Virani A, Singh G, Bewick D, et al. Guiding Cardiac Care during the COVID-19 Pandemic: How Ethics Shapes Every Aspect of Our Health System Response. Can Journal Cardiol 2020. In press.
[12] Wood DA, Mahmud E, Thourani VH, et al. Safe reintroduction of cardiovascular services during the COVID-19 pandemic: Guidance from North American Societies (2020) https://doi.org/10.1016/j.cjca.2020.04.031