

Review Article

Impact of COVID-19 on chronic disease management

Srikar Sama¹, Alekhya Gajjala^{2*}

¹Department of Medicine, Gandhi Medical College, Hyderabad, Telangana, India

²Department of Community Medicine and Family Medicine, AIIMS Bhubaneswar, Odisha, India

Received: 25 May 2021

Revised: 22 June 2021

Accepted: 29 June 2021

*Correspondence:

Dr. Alekhya Gajjala,

E-mail: alekhyagajjala17@gmail.com

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ABSTRACT

Routine care for chronic disease is an ongoing major challenge. We aimed to evaluate the impact of COVID-19 on routine care for chronic diseases. A deeper understanding helps to increase the health system's resilience and adequately prepare for the next waves of the pandemic. Diabetes, heart failure, chronic kidney disease, and hypertension were the most impacted conditions due to the reduction in access to care. It is important routine care continues in spite of the pandemic, to avoid a rise in non-COVID-19-related morbidity and mortality. This is a review article discussing the potential impact of COVID-19 on chronic disease management.

Keywords: Routine care, Chronic diseases, COVID-19, Healthcare professionals, Diabetes

INTRODUCTION

The world was surprised by the abrupt transmission of the SARS-COV-2 virus and the subsequent change in our lives. With a 2.1% case fatality rate and 2.9 million deaths worldwide, the "test, track, and trace" strategy is the only way to decrease the spread. Even though most cases are mild, 5%-10% of patients develop severe symptoms, rapidly progressing to multiple organ dysfunction and requiring admission in intensive care.¹ However, "the mortality rate is higher in older adults and in patients with comorbidities such as chronic renal disease, cardiovascular disease, chronic respiratory disease, hypertension, and diabetes".²

During the epidemic, resources have moved away from chronic disease control and prevention at all levels. Furthermore, beginning in March 2020, authorities worldwide reallocated all resources for COVID-19 patients, charged monetary fines, and enforced social distancing, thereby limiting the functioning of the hospital and ambulatory facilities. All the routine, elective, and non-urgent procedures have also been canceled, thus

hampering routine care. Individuals with chronic illnesses have been deterred from receiving prompt and reliable primary and specialty treatment due to this.³

This article aims to look at how the pandemic impacts both the delivery and content of chronic care. With a more precise understanding, we will find ways to strengthen the healthcare system's resilience and be better equipped for COVID-19 flare-ups and other disasters.

DISCUSSION

Chronic cardiovascular diseases

Patients with acute myocardial infarction, stroke, heart failure, and other chronic cardiovascular problems had a 40% reduction in hospital admissions and emergency room visits relative to baseline during the COVID-19 pandemic.⁴⁻⁹ Heart failure-related hospitalizations decreased by 40–50% during the COVID-19 era relative to the previous period;⁴ however, according to one report, a three-fold rise in heart failure-related mortality was seen.¹⁰ Overall, these findings are alarming, implying that there is

an indirect toll on patients with cardiovascular disease, possibly resulting from people avoiding hospitals for fear of being infected with the virus. In a cross-sectional study of 185,000 North American patients, one-third reported canceling pre-scheduled appointments. In a cross-sectional survey, more than 40% of people said they were more anxious about in-person medical visits.¹¹ Hypertension and cardiovascular disease have frequently been identified as the two most common comorbidities in COVID-19-related mortality, raising the risk two-fold.^{12,13} Besides that, the total number of procedures conducted has been decreased by 42%, according to an analysis. The number of transthoracic echocardiography's and transesophageal echocardiography's performed was reduced by 59% and 76%, respectively, and stress tests were decreased by 78%. The use of coronary angiography (invasive or computed tomography) has dropped by 55%. There was a delay in addressing even the acute conditions like MI, Stroke. "One study of patients with ST-elevation myocardial infarction (STEMI) documented increases in times from onset of symptoms to first medical interaction (over 4 hours), hospital door to percutaneous coronary intervention (PCI) (approximately 30 minutes), and even catheterization laboratory arrival to PCI time (approximately 15 minutes) as compared to the same metrics the previous year".¹⁴ These results pose significant fears about the long-term consequences of delayed diagnosis on cardiovascular health (Table 1).

Chronic endocrine conditions

With diabetes mellitus afflicting nearly 10% of the global population, hypothyroidism impacting 5% of the people, hyperthyroidism currently affecting 0.2–1.3% of the population, and osteoporosis afflicting over 200 million women, the treatment of endocrine disorders cannot be overlooked.¹⁸⁻²⁰ In patients with pre-existing diabetes mellitus, COVID-19 puts them at a higher risk of

developing a severe illness like acute respiratory distress syndrome or even mortality.²¹ Even before the pandemic, access to diabetes treatment, insulin, and supplies was still a challenge in many parts of the world. Now the problems have been compounded as critical infrastructures, such as outpatient clinics and public transportation, have been severely restricted.¹⁵ In a recent study, Ghoshal et al. used predictive models to estimate that the length of lockdown is proportional to the deterioration of glycemic control in diabetic patients.¹⁶ Self-management of T1D already places a significant cognitive and mental health strain on patients, and the new pandemic is contributing to the burden.¹⁷ Most of the problems can be dealt with by appropriate diabetes self-management education (DSME). Doctors and researchers worldwide should promote and explain DSME via social media and the press to create awareness.

Thyroid disorders are another category of illnesses that necessitate regularly monitoring by thyroid function tests. "If biochemical monitoring is not possible due to unexpected circumstances, a block-and-replace regimen may be used, especially after consulting with an experienced endocrinologist through teleconsultation".²² Antithyroid drugs should be used with caution since agranulocytosis is the most common side effect, which may increase susceptibility to COVID-19. If the patient shows signs of agranulocytosis but cannot obtain a blood count due to a lack of healthcare services, the medications must be stopped and restarted one week after the symptoms have resolved. Furthermore, patients with COVID-19 can sometimes present with conjunctivitis, which can pose diagnostic challenges in those with new-onset or established thyroid-associated orbitopathy (TAO).²² Patients with TAO must take extra precautions against COVID-19 because of their possible immunocompromised state after taking glucocorticoids or mycophenolate mofetil.

Table 1: Effects of COVID-19 on cardiovascular morbidity.

Impact on CV morbidity	Direct effects of COVID-19	Delayed health care	Social economic factors
Primary impact (Days-weeks)	Acute coronary syndrome Myocarditis Micro/macro vascular thromboses	Delayed presentation of MI	
Secondary impact (Months-years)	Unknown	Heart failure caused by missed/late presentations of MI Increase in cases of hypertension due to delayed routine care. Reduced adherence with CV risk reducing therapy as an unintended consequence of lockdown. Reduced secondary cardiovascular disease prevention caused by virtual visits, restricted lab monitoring.	Physical inactivity Unemployment and Income loss Depression and anxiety

Even in primary adrenal insufficiency, where there is no stress-induced increase in cortisol, there is a greater risk of progression to critical stages.²² As a result, patients who cannot access healthcare must be given self-management assistance by phone or virtually. “This support mainly focuses on increasing their regular glucocorticoid replacement doses during the intercurrent illness. In patients with PAI developing an acute COVID-19 infection, a stress dose of glucocorticoid with 20 mg hydrocortisone administered orally every six hours can be considered. This can help to prevent an acute adrenal crisis.”

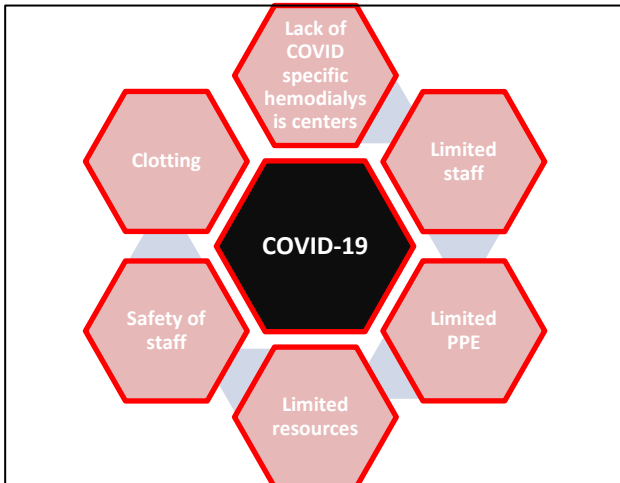


Figure 2: Special challenges for chronic kidney disease management in patients with COVID-19.

Chronic renal disorders

During the COVID-19 pandemic, given the quarantine, home isolation, and lack of COVID specific hemodialysis centers, COVID-19 symptoms at the time of dialysis can be a factor for missed hemodialysis sessions in the outpatient setting. Furthermore, even urgent hemodialysis in the hospital setting is prolonged due to the COVID-19 overburdening of staff and resources, including delay in ambulance transport, delay in ED triage, time for the use of personal protective equipment (PPE) by each individual for every interaction (Figure 1). Due to these myriads of factors that can trigger a delay, patients presenting with ESRD sequelae include uremic encephalopathy, platelet dysfunction, hypertensive crisis, hyperkalemia, and immunosuppression.²³ The opening of COVID-specific outpatient hemodialysis centers and inpatient COVID-specific hemodialysis units will help to address these issues. Lack of communication between medical staff and patients may lead to undiagnosed symptoms or missed hemodialysis sessions. Therefore, medical personnel should contact hemodialysis patients before appointments to identify any suspicious signs or instruct them to call back to report any unusual findings. However, regardless of COVID-19 infection status, hemodialysis providers must ensure that patients receive their scheduled hemodialysis, and this coordination should not be left

solely to the patients. On the other hand, positive patients should be separated and treated in a private dialysis room with airborne protection.²³

Other chronic conditions

According to data from nearly 7,000 patients, patients treated with infliximab for inflammatory bowel disease (IBD) had a substantially lower response to COVID-19 antibodies than those treated with vedolizumab.²⁴ Biological and immunosuppression therapies can cause chronic SARS-CoV-2 infection by suppressing immune responses and have recently been linked to the evolution and emergence of novel variants.²⁵ “Screening for esophageal varices has also been challenging because of the high risk an upper gastrointestinal endoscopy possess as the respiratory and gastric secretions might contain high viral loads of SARS-CoV-2.” Upper gastrointestinal endoscopy can induce aerosol spreading of COVID-19 due to blowing air and suction through the nose and throat. Variceal bleeding, on the other hand, is a potentially fatal problem in patients with liver cirrhosis. “In comparison to elective prophylactic band ligation of varices, patient outcomes will be much worse if patients developed variceal bleeding and presented as an endoscopic emergency.²⁶ Like hepatocellular carcinoma surveillance, variceal surveillance should strike a balance between the risk of variceal bleeding and the risk of contracting COVID-19.” Besides, the risk of infecting healthcare workers in the endoscopy suite, nosocomial outbreaks, and a lack of personal protective equipment should all be considered. Hence, it would be reasonable to delay for few months if there is widespread of the disease.

CONCLUSION

This study demonstrates that the COVID pandemic had a significant impact on chronic care continuity, highlighting previously unrecognized flaws in chronic care management. Face-to-face appointments had to be discontinued, and the emphasis had to change to COVID care. There was no proactive outreach to patients with chronic conditions in most practices, and multidisciplinary collaboration was relegated to the back burner. Implementing chronic care management by stratifying patients according to their needs and planning in case of flare-ups or a second wave are fundamental ways to change.

Funding: No funding sources

Conflict of interest: None declared

Ethical approval: Not required

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Cite this article as: Sama S, Gajjala A. Impact of COVID-19 on chronic disease management. *Int J Res Med Sci* 2021;9:2510-3.