A New Dynamic for Post-COVID-19 Heart Syndrome and Home-based Cardiac Rehabilitation

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Dear Madam,

The struggle against COVID-19 continues, but many long-term effects of COVID-19 are still under research[1]. SARS-CoV-2 replicates in the heart and involves the protein angiotensin-converting enzyme[2]. It silently causes myocardial inflammation and an increase in troponin concentration without any clinical signs nor symptoms of myocardial dysfunction. Asymptomatic patients or health care workers (HCWs) may also suffer from cardiovascular complications in the long term[3].

A study conducted by Lorente-Ros et al. showed 20.9% of COVID-19 patients admitted had increased cardiac troponin I levels. Furthermore, these patients had worse clinical outcomes, including all-cause mortality in 30 days; many of these patients may not have any previous comorbidities[4].

Cardiac rehabilitation (CR) is a low-cost way to deliver structured exercise and education, lowering the risk of re-hospitalization and mortality by up to 25%[4]. It is a class I level-A treatment for cardiovascular diseases[5]. While the world has adopted CR effectively, Pakistan has yet to make CR available for Heart patients[6].

NICVD, Tabba Heart Hospital and AKU are a few centres available in Karachi, Pakistan. However, with the ongoing COVID-19 situation, there is limited access and adherence to centre based programs. Due to which many researchers have delved into Home-based CR (HBCR) programs. The benefits are numerous: flexibility in timings, uninterrupted care via remote access, no additional travel. Additionally, there is decreased usage of paid time off for in-person CR[5].

I propose that an effective way to reduce mortality and morbidity of Post COVID-19 Heart Syndrome is to provide patients with a full cardiac workup followed by HBCR. Exercise training is a significant part of HBCR that causes substantial alterations in the cardiovascular system. It helps decrease endothelial dysfunction and prevents thromboembolic consequences. With HBCR, the intensity, duration and speed of exercises can be adjusted according to patient tolerance and allow for patient monitoring remotely[2]. The medical community must be on the lookout for individuals who may be at risk of developing Post COVID-19 Heart Syndrome and urge them for HBCR to reduce the morbidity caused by COVID-19.

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References

1. Mayo Clinic Staff. COVID-19 (coronavirus): Long term effects [Internet]. Mayo Clinic; 2021 [updated 2021 May 06; cited 2021 July 16]. Available from: https://www.mayoclinic.org/diseases-conditions/coronavirus/in-depth/coronavirus-long-term-effects/art-20490351
2. Calabrese M, Garofano M, Palumbo R, Di Pietro P, Izzo C, Damato A, Venturini E, Iesu S, Virtuoso N, Strianese A, Ciccarelli M, Galasso G, Vecchione C. Exercise Training and Cardiac Rehabilitation in COVID-19 Patients with Cardiovascular Complications: State of Art. Life 2021; 11:259. [DOI: 10.3390/life11030259].
3. Gasecka A, Pruc M, Kukula K, Gilis-Malinowska N, Filipiak KJ, Jaguszewski MJ, Szarpak L. Post-COVID-19 heart syndrome. Cardiol J 2021; 28:353-354. [DOI: 10.5603/CJ.a2021.0028.]
4. Lorente-Ros A, Monteagudo Ruiz JM, Rincón LM, Ortega Pérez R, Rivas S, Martínez-Moya R, Sanromán MA, Manzano L, Alonso GL, Ibáñez B, Zamorano JL. Myocardial injury determination improves risk stratification and predicts mortality in COVID-19 patients. Cardiol J. 2020; 27:489-496. [DOI: 10.5603/CJ.a2020.0089].
5. Drwal KR, Forman DE, Wakefield BJ, El Accaoui RN. Cardiac Rehabilitation during COVID-19 Pandemic: Highlighting the Value of Home-Based Programs. Telemed J E Health. 2020; 26:1322-1324. [DOI: 10.1089/tmj.2020.0213].
6. Al Arabia DH, Rathore FA, Mansoor SN. Cardiac Rehabilitation as a Continuum of Care and Current Situation in Pakistan [Internet]. Journal of the College of Physicians and Surgeons Pakistan 2018; 28:412-413. Available from:https://www.cpsp.edu.pk/jcpsp.pk/archive/2018/May2018/21.pdf