

Telehealth during COVID-19 pandemic: will the future last?

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This editorial refers to ‘The future is now: A call for action for cardiac telerehabilitation in the COVID-19 pandemic from the Secondary Prevention and Rehabilitation section of the European Association of Preventive Cardiology’ by Martijn Scherrenberg et. al. doi: 10.1177/2047487320939671.

Cardiac rehabilitation (CR) constitutes a major pillar of secondary prevention measures in cardiac patients, in particular for those with coronary artery disease and heart failure, but also for patients with other cardiovascular diseases (CVDs), such as valvular heart disease, heart transplantation, congenital heart disease, or patients with an extensive cardiovascular risk profile.¹ Hospital- or centre-based, multi-disciplinary CR programs are the gold standard for delivery of optimal post-interventional care and implementation of secondary prevention goals in cardiac patients. The current COVID-19 pandemic however has all of a sudden prevented almost all patients in need of CR services in Europe the access to CR centres, in particular for those attending ambulatory programs.

Almost overnight, these centres had to develop and organize tele-rehabilitation programs including all core components of comprehensive CR. Taking up contact with patients and providing medical and psychosocial support were the first steps to be taken. Thereafter, programs tried to keep up their service with patient monitoring at distance, including all different healthcare professionals, and tailoring the program to the individual patient, trying to respect safety limits. To make contact, telephone, text messaging, emails, and video consultations were used along with web-based platforms and applications suitable to build up a tele-video-guided CR. In parallel, CR staff had to be educated on the impact of COVID-19 in cardiovascular patients.

In the actual issue of the *EJPC*, a call for action for cardiac telerehabilitation from Scherrenberg and colleagues² is published, in which they review the evidence of remote control of cardiovascular risk factors, and provide a practical guide for the set-up of a comprehensive cardiac tele-rehabilitation intervention.

The ‘exercise part’ of a CR program seems to suit remote guidance quite well: a 6-month tele-rehabilitation program in cardiac patients led to a larger improvement in physical fitness and health-

related quality of life (QoL) while producing persistent health benefits and being cost-effective up to 2 years after the intervention.³ A significant improvement in peak oxygen consumption and QoL has also been reported in patients with heart failure, without serious adverse events during exercise over a period of 9 weeks.⁴

Regarding remote counselling and education about cardiovascular risk factors, there is little evidence, but multiple strategies can be used. Especially, telephone counselling and text messaging seem feasible approaches for a quick set-up. For remote smoking cessation, effective methods for guidance include internet-based, text-messaging-based, video consultation, and mobile applications-based interventions. Especially, text-messaging shows great potential. Mobile applications are also effective in improving blood pressure and medication compliance, at least in small studies with a short duration. Regarding remote management of diabetes, different technology-based interventions are available and remote interactive management with a focus on case-management and motivational interviewing seems to be more effective than solely self-management. Remote weight and diet management interventions could be an effective alternative for centre-based weight loss programs as well. Especially, internet-based interventions and mobile applications seemed to be effective. Regarding psychosocial counselling and vocational support, there is limited evidence. However, there are well-established digital treatments for depression and most of the anxiety disorders. Most digital delivered psychosocial interventions are forms of cognitive behaviour therapy and are based on existing face-to-face treatments. Therefore, telephone and video seem the most suitable approach to deliver remote face-to-face interventions.

Home-based programs with or without tele-monitoring have already been offered in the past, especially with the aim to increase patient participation in structured secondary prevention programs and to support behavioural changes at the long term. Available evidence suggests that home-based CR may provide an alternative option for CR services for stable low- to moderate-risk patients with CVD who lack available hospital- or centre-based services.⁵

Tele-rehabilitation has indeed the potential to overcome barriers for participation, one of the major challenges of CR services today. However reasons of non-participation are manifold and not all are

able to be addressed by tele-rehabilitation, such as financial coverage and referral issues or factors related to the patients themselves, like lack of interest. On the other hand, technology tools are advancing at a rapid pace and facilitate the implementation of tele-rehabilitation. From the scientific point of view, shorter-term improvements in functional capacity, health related quality of life, and CVD risk factor control are similar in home-based and hospital- or centre-based CR; however, longer-term studies on the impact of home-based CR on clinical outcome are still lacking.⁶ A question remains, whether the tele-rehabilitation will challenge the actual gold standard of centre-based programs. One of the most important advantages of centre-based CR programs compared with remote guidance for the patient is the possibility of social interaction and the experience of a feeling of togetherness. Comparing its own situation with those of others, exchanging feelings of uncertainty or talking about difficulties in the implementation of lifestyle changes are major needs of patients. A face-to-face interaction with the rehabilitation team workers also confers a more obliging relation and facilitates the motivation of the patients. From the medical point of view, the initial assessment cannot be done at distance and certainly needs the physical presence of the patient. Since the clinical assessment needs the presence and experience of a cardiologist, this task cannot be delegated to a general physician in the proximity of the patient's home. Especially, high-risk patients should start exercise in a supervised setting, at least during the first weeks of CR to allow the detection of complications, adapt the medication, and to regain confidence regarding his physical performance.

A successful transition to telemedicine requires the intersection of at least three key factors: access to broadband internet, an internet-capable device, and sufficient technology literacy to take advantage of the first two.⁷ While factors such as minimal commuting efforts, individualized counselling and better tailoring of interventions as well as protection from virus infection while staying at home, favour tele-rehabilitation, other factors constitute unresolved problems: digital literacy, reimbursement, data safety and privacy, lack of legal principles, and documentation in an electronic medical record.

Some of the limitations encountered while conducting video utilization and telephone consultations during the COVID-19 pandemic were highlighted by Eberly et al.⁸ They compared the demographics of patients with completed telemedicine encounters at a large academic health system to those who were scheduled, but did not complete a visit. They showed that the use of technology for maintenance of care may exacerbate inequities. Vulnerable patients, including poorer and older patients, and those with limited knowledge of the local language may have increased barriers to engage in care via telemedicine, particularly video visits. Female gender was also independently associated with less telemedicine and video use.

Therefore, will this moment of telehealth use and acceptance last? Athena Poppas, president of the American College of Cardiology holds that 'It can and it must'.⁹ Telehealth in general and tele-rehabilitation in particular as modes of outpatient care delivery have been rapidly implemented and accepted by patients and providers. The technology to meet and interact with patients is available and the majority of them is also able to make use of it, although some patient groups might be disadvantaged, in particular in an elderly CR population. However, obvious advantages of a remote management have been revealed and will constitute a supplemental option in the search of the ideal CR program, which should be tailored, clinically effective and safe, and well accepted by the patients permitting long-term adherence and maintenance of achieved benefits.

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References

- Piepoli MF, Corra U, Adamopoulos S, Benzer W, Bjarnason-Wehrens B, Cupples M, Dendale P, Doherty P, Gaita D, Hofer S, McGee H, Mendes M, Niebauer J, Pogosova N, Garcia-Porrero E, Rauch B, Schmid JP, Giannuzzi P. Secondary prevention in the clinical management of patients with cardiovascular diseases. Core components, standards and outcome measures for referral and delivery: a policy statement from the cardiac rehabilitation section of the European Association for Cardiovascular Prevention & Rehabilitation. Endorsed by the Committee for Practice Guidelines of the European Society of Cardiology. *Eur J Prev Cardiol* 2014; **21**:664–681.
- Martijn S, Matthias W, Dominique H, Heinz V, Véronique C, Ines F, Harelid K, Paul D. *Eur J Prev Cardiol* . 2020 Jul 2; Online ahead of print.
- Frederix I, Hansen D, Coninx K, Vandervoort P, Vandijck D, Hens N, Van Craenenbroeck E, Van Driessche N, Dendale P. Medium-term effectiveness of a comprehensive internet-based and patient-specific telerehabilitation program with text messaging support for cardiac patients: randomized controlled trial. *J Med Internet Res* 2015; **17**:e185.
- Piotrowicz E, Pencina MJ, Opolski G, Zareba W, Banach M, Kowalik I, Rzechowski P, Szalewska D, Pluta S, Glowczynska R, Irzmannski R, Oreziak A, Kalarus Z, Lewicka E, Cacko A, Mierzynska A, Piotrowicz R. Effects of a 9-week hybrid comprehensive telerehabilitation program on long-term outcomes in patients with heart failure: the Telerehabilitation in Heart Failure Patients (TELEREH-HF) randomized clinical trial. *JAMA Cardiol* 2019; **17**:300–3008.
- Clark RA, Conway A, Poulsen V, Keech W, Tirimacco R, Tideman P. Alternative models of cardiac rehabilitation: a systematic review. *Eur J Prev Cardiol* 2015; **22**: 35–74.
- Thomas RJ, Beatty AL, Beckie TM, Brewer LC, Brown TM, Forman DE, Franklin BA, Keteyian SJ, Kitzman DW, Regensteiner JG, Sanderson BK, Whooley MA. Home-based cardiac rehabilitation: a scientific statement from the American Association of Cardiovascular and Pulmonary Rehabilitation, the American Heart Association, and the American College of Cardiology. *Circulation* 2020; **142**:312–314.
- Julien HM, Eberly LA, Adusumalli S. Telemedicine and the forgotten America. *Circulation* 2020.
- Eberly LA, Khatana SAM, Nathan AS, Snider C, Julien HM, Deleener ME, Adusumalli S. Telemedicine outpatient cardiovascular care during the COVID-19 pandemic: bridging or opening the digital divide? *Circulation* 2020. doi: 10.1161/CIRCULATIONAHA.120.048185.
- Poppas A, Rumsfeld JS, Wessler JD. Telehealth is having a moment: will it last? *J Am Coll Cardiol* 2020; **75**:2989–2991.