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Self-selected cardiac rehabilitation trajectories: increasing patient empowerment

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This editorial refers to "Comparison of patient characteristics and health outcomes between self-selected centre-based cardiac rehabilitation and hybrid cardiac telerehabilitation - a prospective cohort study" by P. Eser et al., pp.....

For many years, the call to empower patients and support them with patient-centric interventions and applications for self-management of their disease finds resonance in society. After a diagnosis of cardiovascular disease (CVD), or the suffering from a cardiovascular event (with or without surgery), it is recommended that patients should be referred to cardiac rehabilitation (CR) or secondary prevention interventions [1]. However, many patients face transportation difficulties or other barriers that impede participation in hospital-based ambulatory rehabilitation [2]. To overcome this challenge, digital technology and mHealth has been studied more intensively the last few decades [3]. Digital technology and mHealth solutions have predominantly been investigated for phase III CR, when the patient is back at home and self-care is important. Gradually, applications of such technology in phase II, supervised CR, are explored which leads to hybrid approaches that combine supervised sessions in the rehabilitation centre and home-based components. Recently, some of these efforts find their way towards integration in day-to-day clinical practice. While carefully designed studies provide interesting evidence about the effectiveness of different rehabilitation approaches, the settings in clinical practice are often inflexible. Depending on locally established rehabilitation practice and applicable regulations (such as reimbursement of the rehabilitation trajectory by health insurance), joining rehabilitation is often a binary decision for patients. They engage in the available rehabilitation trajectory with all its advantages and hurdles, or do not join at all. To move on to a next level of patient empowerment, more flexibility for patients is needed, to optimally fine-tune the CR trajectory on their individual risks and personal characteristics.

This issue of the European Journal for Preventive Cardiology reports on a Swiss study [4], in which patients have a strong say in the type of CR trajectory they will join.

A single-centre, prospective cohort study was set up in Inselspital, Bern University Hospital in Switzerland, in 2022-2023 [4]. The purpose of the study was to compare patient characteristics and health outcomes in patients engaging in a CR trajectory that they selected themselves from two possibilities: usual care with centre-based sessions (cbCR, centre-based cardiac rehabilitation) vs. a hybrid rehabilitation trajectory (hCTR, hybrid cardiac telerehabilitation) that complements centre-based rehabilitation with a home-based

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telemonitoring component. The length of both ambulatory rehabilitation trajectories, cbCR and hCTR, was three months.

Common features for both rehabilitation trajectories are their comprehensive nature (encompassing physical activity counselling and exercise training, psychological counselling/support, nutrition counselling and weight management, and support for smoking cessation) and patient guidance in a shared decision-making (SDM) mindset. The study was based on nurse-led programs, but SDM was also applied by cardiologists to tailor pharmacotherapy (e.g., to target blood pressure, LDL-cholesterol concentrations) and by physiotherapists in the context of structured exercise training and physical activity counselling. Based on the Swiss reimbursement policy, patients under 65 years were entitled to have three centre-based exercise training sessions per week and those above 65 to have two supervised centre-based sessions for structured exercise.

Differences between the approaches for the cbCR and hCTR participants mainly related to the way structured exercise was integrated in the comprehensive rehabilitation, even though the ESC guidelines were considered in any case. For the cbCR group, all structured exercise sessions were organized in the rehabilitation centre and lasted 90 minutes. In contrast, participants in the hCTR group could indicate their preference for supervised sessions in the rehabilitation centre and additional home-based exercise sessions. A total of three sessions per week was aimed for, but based on patient preference this could be two centre-based and one home-based session or vice versa. Depending on the patient's consent, participants in the hCTR group were monitored with a Healer R3 biosensor vest (ECG's and heart rate) during home-based exercise sessions and with a wrist-worn Fitbit accelerometer (step count) to monitor general physical activity [3].

A distinctive quality of the study is its embedding in real clinical practice. In contrast to an RCT (Randomized Controlled Trial) that evenly randomizes participants to usual care or the intervention group, the current study assigned patients to the group of their choice, making the distribution over the rehabilitation trajectories an important parameter for further analysis.

Screening 1292 patients resulted in 546 enrolments, of which 406 participants completed the study. The distribution of these 406 patients over the two cardiac rehabilitation trajectories is 72% (n=291) in cbCR and 28% (n=115) in hCTR. The authors do not share detailed information on the chosen rehabilitation trajectories of the 70 patients that dropped out, but they consider the drop-out rate to be on a similar level in both trajectories.

Interesting to notice, is the profile of the patients that revealed their preference for the hCTR trajectory. On average, these patients were younger and fitter, had similar cardiovascular risk profiles but reported less anxiety and depressive feelings. Compliance to centre-based sessions turned out to be more dependent on age (being somewhat higher for those participants above 65 years) than on the self-selected trajectory cbCR or hCTR.

The changes in outcome parameters show a positive effect of cbCR as well as hCTR. In particular, peak oxygen uptake (Peak VO_2) increased significantly in both groups, with no significant difference between cbCR and hCTR after adjusting for baseline patient characteristics. Similarly, no significant between-group difference was detected for improvements in the cardiovascular risk profile for parameters such as body composition, blood pressure, lipid profile and glycaemic control. Outcomes assessing psychosocial well-being, scored with HeartQoL (health-related quality of life), PHQ-9 (patient health questionnaire) and GAD-7 (generalized anxiety disorder), also indicate equivalent improvements in both cbCR and hCTR.

We thus conclude that the variation in rehabilitation modalities in the study, as represented by the patients' choice for cbCR or hCTR, generally led to comparable outcomes.

The study of Eser et al. [4] strongly contributes to contemporary knowledge on CR and secondary prevention given its comparative approach in realistic rehabilitation settings. Experimental designs for RCT's and intervention studies in CR are traditionally defined to

uncover differences between the outcomes (such as improvement in exercise capacity) between usual care in supervised, centre-based settings and a newly investigated rehabilitation trajectory (for instance digitally-supported telerehabilitation) [5]. In contrast, the current study started from two realistic options in clinical practice in the University Hospital in Bern, guided patients in their choice between offered CR trajectories, and studied both initial patient characteristics and outcomes in relation to the specific rehabilitation trajectories. As pointed out by the authors, the Swiss reimbursement system facilitated offering a choice between two CR trajectories in phase II, which might not be possible in other countries. The results of the study show that patient characteristics differ between both groups (with 28% of participants joining rehabilitation choosing for hCTR and generally being younger and fitter, and experiencing better quality of life), emphasizing the need for a diverse offer. Qualitative research results from interviews or focus groups, that could give indications for patients' rationale when choosing their CR trajectory, are not reported. Many factors influence such a decision, among which employment status, age and independence, belonging to a group of companions or a preference for (individual) sports for which facilities are not available in the CR centre.

Sub-optimal participation in cardiac rehabilitation is a well-known problem [6], leading to missed opportunities for affected patients to improve their quality of life after being confronted with a CVD. Barriers and facilitators influencing the engagement to participate in cardiac rehabilitation / secondary prevention have been investigated [7]. The study shows that – within limits of financial and regulatory constraints – it is crucial to offer some variation in the CR trajectory. This aligns with present-day attention for personalized approaches, but goes beyond individual risk consideration and exercise preferences to empowering patients for decisions about the overall rehabilitation approach. Obviously, shared decision-making is a powerful enabling technique to align patient preferences with caregiver recommendations, guidelines and practical constraints in the rehabilitation settings [8][9]. Future comparative studies by multidisciplinary teams, via RCT but also in realistic clinical settings, remain important to collect evidence on detailed differences between outcomes and uptake based on patient characteristics. Tailoring the interventions opens bright perspectives for patient empowerment, but also urges to make well informed decisions in practical rehabilitation settings.

Conflict of interest: none declared

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