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Hybrid Cardiac Rehabilitation as an Alternative to Common Hospital-Based Cardiac Rehabilitation in Iran: An Appropriate Model for the Iranian Health System Limitations, Culture, and Patients

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Dear Editor,

Cardiac rehabilitation (CR) is among the most important methods of controlling and reducing complications and the mortality rate after a cardiac event or a cardiac surgery (1). Among the various CR program formats, hospital-based cardiac rehabilitation (HBCR) is commonly the first-line treatment in developing countries, such as Iran. However, Iran has a limited number of only 16 HBCR centers in 11 cities: Tehran, Mashhad, Isfahan, Tabriz, Shiraz, Kermanshah, Yazd, Hamadan, Ahvaz, Gillan, and Qazvin. Consequently, many patients must travel long distances and face high financial and time costs to use HBCR services. These factors cause many patients to avoid participating in CR programs; Iranian studies have indicated that only 15% of patients participate in HBCR, and only 5% to 6% are committed to the treatment and receive complete HBCR services (2). Therefore, given the major challenges, such as cost and access, to the traditional HBCR model, emphasis is no longer placed on merely receiving HBCR. Instead, health systems seek to develop alternative CR models to ensure that the available options are appropriate for patients' needs, risk factor profiles, and preference (3). The new interventions include multi-factorial individualized telehealth delivery, Internet-based presentation, telehealth interventions focused on exercise and recovery, home-based CR, and programs specific to rural, remote, and culturally and linguistically diverse populations (3).

In Iran, as in many countries, factors, such as cost and distance, significantly reduce patients' commitment and participation in HBCR (4, 5). A lack of easy access to HBCR centers due to their limited number in Iran is a major challenge to patients' commitment and participation. For example, the HBCR center at Imam Ali hospital in the city of Kermanshah is the only one in the provinces of Kermanshah, Kurdistan, and Eilam, which cover 74,000 sq km and have a population of 4 million, of whom only 850,000 live in Kermanshah (4). Therefore, the majority of the population must travel great distances to access these services. In addition, insurance companies' refusal and patients' inability to pay the full costs of treatment exacerbate the challenges. Iran has four medical insurance organizations treatment services, social security organization, armed forces medical services insurance organization, and imdad committee insurance which cover 70% of the costs of 10 HBCR sessions, 70% of the costs of all sessions, 90% of the costs of 20 sessions, and 90% of the costs of all sessions respectively (4). Patients are responsible for the remaining costs.

To resolve these challenges, researchers and specialists recommend adopting an alternative to the conventional HBCR model which fits with the culture and wealth of particular countries. A model that has been used successfully in Kermanshah for more than 10 years is hybrid cardiac rehabilitation (HCR) (4, 6). The HCR model, which costs only 38% of what the HBCR model does according hospital guidelines (4), is considered an appropriate alternative model. It reduces cardiovascular risk factors to the same extent as HBCR (3) and improves exercise capacity and commitment to treatment (6). In HBCR, patients participate in three sessions a week for eight weeks (a total of 24 sessions). The 1-hour training program includes a 10-minute warm-up, 45 minutes of dynamic exercises, and 5-minute cooldown. In the HCR model, patients participate in a 2-hour training session and a 1-hour exercise session once a week for 8 weeks (8 sessions). The training sessions emphasize control and management of risk factors, nutrition, weight control, and stress management. If the patient is illiterate, a family member is asked to be present at the meetings. At the end of sessions, HCR group patients are instructed to do aerobic exercise, specifically walking at least

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5 days a week, to perform relaxation techniques, and to record the results. In addition, patients might have phone calls with every member of the CR team during the week (6). Patients who live in rural and remote areas and have insufficient financial resources and insurance coverage are welcome to join this program (4).

In general, HCR is an appropriate, healthy program (7) from which all cardiac patients, including those who have undergone coronary artery bypass graft, myocardial infarction, and heart failure, can benefit regardless of their commitment to treatment (8). As well, HCR significantly reduces the risk factors (6), improves physical activity, and aids return to work in male patients (9). The impact of alternative models of CR programs in low-medium income countries, such as Iran, which do not have adequate health facilities, especially in remote areas, is not well known. However, it seems that an appropriately designed HCR could be a suitable alternative model for HBCR (6). This type of treatment program which has reduced disease complications at the Kermanshah CR Center (4, 6) has been assessed and reported and can be applied in other parts of the country.

Footnote

Authors' Contribution: Saeid Komasi participated in designing the study and writing the manuscript. Mozhgan Saeidi participated in designing the study and critically revised the manuscript for important intellectual content. All the authors read and approved the final manuscript.

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