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The Optimization of the Post-Rehabilitation Process Heart Surgery: Our New Proposal Physiotherapy Record

LETTER TO THE EDITOR

To the Editor,

We read with interest the research by Torun[1] on the multiple benefits that resistance exercise (RE) can have in the treatment of coronary heart disease, peripheral artery disease, heart failure, and cardiac rehabilitation. However, we noticed that the article does not mention scales of judgment for patients undergoing these exercises, and it seems important to us to emphasize this aspect. Recently, Korean colleagues on the structuring of the organization of cardiac rehabilitation according to shared guidelines had made what seems to us to be an omission, which is also present in the Scottish guidelines (Scottish Intercollegiate Guidelines Network, SIGN).[2] Furthermore, we must recognize that there are limitations in the management by the multidisciplinary team of physiatrists, cardiologists, cardiac surgeons, geriatricians and physiotherapists in the care of chronic patients in the area of cardiovascular rehabilitation. In particular, there are several gaps in the management of frail patients, due to the presence of substantial heterogeneity in the care of these patients due to the presence of physiotherapy records designed in a very different way and present in the various centers. All this is also evident from the analysis of the guidelines mentioned. We carried out a search between December 2023 and March 2024 using PubMed as a database to collect the scientific literature available regarding cardiac rehabilitation, its benefits, complications, and the most effective evaluation scales that can be used for the purposes of a correct physiotherapy evaluation. The string used was the following: ((((Cardiac Rehabilitation [MeSH Terms]) AND (Exercise[MeSH Terms])) AND (exercise therapy[MeSH Terms])) AND (Prevention [All Fields])). The following filters were inserted: "Humans," "Clinical Trial," "Meta Analysis," "Randomized Controlled Trial." Furthermore, only articles published between 2016 and 2024 were considered. The search resulted in 16 articles, and then we viewed the abstracts: 8 articles were excluded as they were not relevant to the research carried out, leaving 8 articles. Then, we carried out another search on PubMed with the following string: ((((Activities of Daily Living [MeSH Terms]) AND (Walking [MeSH Terms])) AND (Time [MeSH Terms])) AND (mobility [All Fields])) AND (evaluation scale [All Fields]). The following filters were inserted: "Humans" and "English." The search resulted in 17 articles, and after viewing the abstracts, 15 articles were excluded as they were not relevant to the research carried out (with 2 remaining articles). Finally, another search was carried out on PubMed with the following string: (((Accidental Falls [MeSH Terms]) AND (Risk Assessment [MeSH Terms])) AND (incidence [MeSH Terms])) AND (Adult [MeSH Terms]). We inserted the same filters of previous research, yielding 32 results, of which 28 were excluded. Therefore, 14 studies were included in our review (Figure 1). The rating scales are designed to evaluate specific parameters such as the degree of disability, functional independence, clinical symptoms, physical and/or cognitive functions, emotional state, well-being, and socio-work functions. They can be used to monitor changes in the patient during the rehabilitation treatment and to evaluate the effectiveness of therapeutic interventions. We have selected the following scales as useful scores and assessments for the

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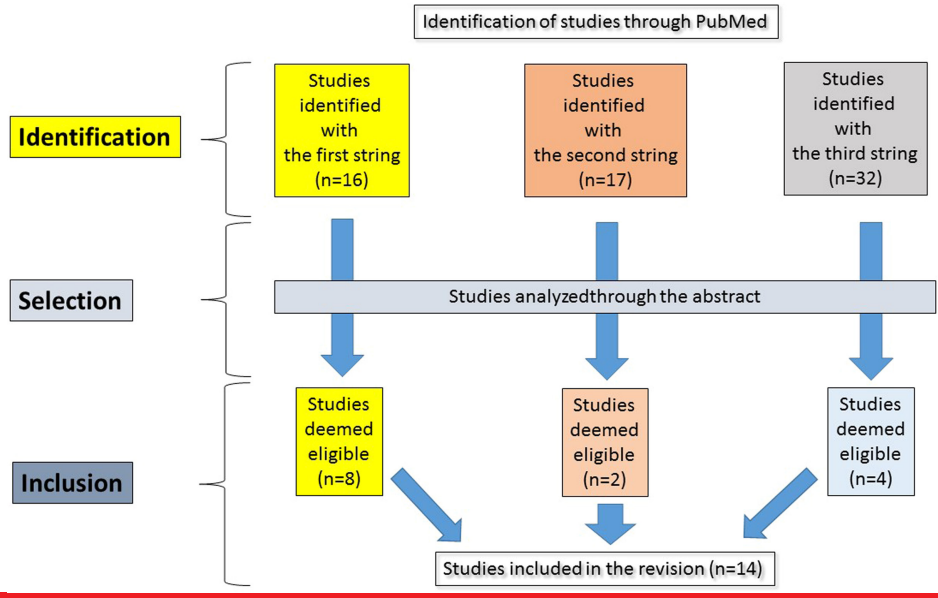

Figure 1. Our work proposes the introduction of a new rehabilitation record after cardiac surgery, based on updated scientific evidence and integrated with functional evaluation protocols. This tool aims to optimize the patient's recovery path by providing a flexible and customizable model for evaluation and therapy planning. Explanations of research details in the main text.

composition of our physiotherapy rehabilitation folder: the Visual Analogic Scale for information on pain;[3] then, the 6-minute walking test (6MWT), which is considered an integrated measurement of cardiopulmonary, respiratory, circulatory, neuromuscular, and metabolic during exercise is particularly useful for assessing functional adaptation to daily life. Being based on submaximal and self-paced effort, the 6MWT reflects the level of exercise typical of daily activities.[4] The Borg scales (both 10 and 20 points): these scales have been widely used to quantify various perceived symptoms such as dyspnea and muscle fatigue during exercise. Several studies have assessed the validity and reliability of Borg's assessments of dyspnea during exercise.[5] The Tinetti Scale is a multidimensional evaluation tool widely used to assess the risk of falls in the elderly. The Barthel index is one of the most well-known and used tools for evaluating physical function, especially in rehabilitation.[6] The Berg Balance Scale provides static and dynamic functional measures for maintenance in sitting and standing positions.[7] Likewise, the timed up and go test is a simple but yet effective tool for assessing mobility, balance, and risk of falls in elderly people or those with impaired mobility, as well as the Morse Scale, which categorizes fall risk into 3 levels: low risk of falling for scores from 0 to 24, moderate risk for scores from 25 to 44, and high risk for scores of 45 or more.[8] The Functional Ambulation Category is an initial method for classifying mobility. In contrast, the Motricity Index is used for evaluating the execution of specific motor tasks applied to individual limbs, with a total score from 0 to 100. The New York Heart Association classification is designed to evaluate the severity of cardiac symptoms and their impact on daily activities. The Rivermead Mobility Index assesses functional mobility in gait, balance, and transfers. It was developed in 1991 to be used after stroke or head injury, but an Italian study has also shown its usefulness in the setting of cardiac rehabilitation, especially in very elderly patients.[9] Clinical practice in cardiac rehabilitation requires careful management of rehabilitation records. Folders offer the ability to track the evolution of patients, identify future care needs, and ensure professional accountability for the care provided. Furthermore, they represent a fundamental communication tool, allowing other healthcare professionals to understand the current status of the patient and facilitate the provision of safe, high-quality treatments. The creation of the cardiac rehabilitation record emerges as a significant step in optimizing rehabilitation services cardiac, as attested by the recommendations of the Cardiac Rehabilitation/Secondary Prevention Performance Measures Writing Committee and other American scientific societies,[10] offering a structured and accessible system for accurate and complete patient monitoring. It is recommended that future studies should focus on analyzing the actual impact of these unified procedures once implemented in different clinical contexts (heart failure, valvular heart disease patients treated with cardiac surgery, patients suffering from cardiomyopathy who have undergone transplantation and ischemic heart patients treated with revascularization or bypass techniques).

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REFERENCES

1. Torun A. Role of resistance exercise in cardiology. *Anatol J Cardiol*. 2024;28(5):217-221. [CrossRef]

2. Kim C, Sung J, Lee JH, et al. Clinical Practice Guideline for Cardiac Rehabilitation in Korea. *Ann Rehabil Med*. 2019;43(3): 355-443. [CrossRef]
3. Crichton N. Visual analogue scale (VAS). *J Clin Nurs*. 2001;10(5): 697-706.
4. Giannitsi S, Bougiakli M, Bechlioulis A, Kotsia A, Michalis LK, Naka KK. Six-minute walking test: a useful tool in the management of heart failure patients. *Ther Adv Cardiovasc Dis*. 2019;13:1753944719870084. [CrossRef]
5. Aamot IL, Forbord SH, Karlsen T, Støylen A. Does rating of perceived exertion result in target exercise intensity during interval training in cardiac rehabilitation? A study of the Borg scale versus a heart rate monitor. *J Sci Med Sport*. 2014;17(5):541-545. [CrossRef]
6. Motoki H, Nishimura M, Kanai M, et al. Impact of inpatient cardiac rehabilitation on Barthel index score and prognosis in patients with acute decompensated heart failure. *Int J Cardiol*. 2019;293:125-130. [CrossRef]
7. Tanriverdi A, Kahraman BO, Ozsoy I, et al. Balance performance in patients with heart failure. *Heart Lung*. 2020;49(5):458-462. [CrossRef]
8. Tarro Genta F, Tidu M, Bouslenko Z, et al. Cardiac rehabilitation after transcatheter aortic valve implantation compared to patients after valve replacement. *J Cardiovasc Med (Hagerstown)*. 2017;18(2):114-120. [CrossRef]
9. Scimia F, Casadei I, Cerquetani E, et al. Functional evaluation of ultra-octogenarian patients undergoing cardiac rehabilitation: correlation between six minute walking test and Rivermead mobility index. *Monaldi Arch Chest Dis*. 2010;74(4):159-163. [CrossRef]
10. Thomas RJ, King M, Lui K, et al. American Heart Association Task Force on Performance Measures. AACVPR/ACCF/AHA 2010 Update: performance measures on cardiac rehabilitation for referral to cardiac rehabilitation/secondary prevention services: a report of the American Association of Cardiovascular and Pulmonary Rehabilitation and the American College of Cardiology Foundation/American Heart Association Task Force on Performance Measures (writing committee to develop clinical performance measures for cardiac rehabilitation). *J Cardiopulm Rehabil Prev*. 2010;30(5):279-288. [CrossRef]