



LETTER TO THE EDITOR

Reply to Letter to the Editor regarding the article “Suboptimal control of cardiovascular risk factors in myocardial infarction survivors in a cardiac rehabilitation program”



Resposta a Carta ao editor referente ao artigo «Controlo subótimo de fatores de risco cardiovasculares em indivíduos com enfarte agudo do miocárdio submetidos a um programa de reabilitação cardíaca»

To the Editor,

We would like to thank Alexandre Antunes and colleagues for their interest in our study, as well as for the comments made.¹ Over the years the management of patients after a myocardial infarction (MI) has continued to evolve, with various pharmacological and non-pharmacological interventions showing benefits in this patient population.² Importantly, the progressive incorporation of data on some of these interventions has led to refinements in the approach to cardiovascular (CV) risk factor (CVRF) control, a concept illustrated in the guidelines, which present increasingly stringent goals in these very high-risk individuals.^{2–4} Notably, cardiac rehabilitation (CR) programs, a central component of the management of MI survivors, have also been continuously adapted.^{5,6} Since the inception of our program 29 years ago, these developments have had a major impact on patient management strategies, enabling improvements in both morbidity and mortality while providing novel insights into this complex clinical entity.^{5,7}

In our report, we presented data concerning CVRF control in patients who underwent a phase II CR program after MI.⁸ As detailed, and as pointed out by Antunes et al., control of CVRFs such as dyslipidemia and diabetes were suboptimal, even with the use of various evidence-based strategies encompassing different pharmacological agents.^{1,8} Nevertheless, several points should be taken into consideration when assessing these findings.

Firstly, the timing of the sample should be noted. As discussed in our study, this notion relates to the use of several agents such as ezetimibe, gliflozins and glucagon-like peptide 1 agonists. While we conducted a dedicated analysis

concerning the (then) most recent guidelines, we believe that this point should be underscored. Indeed, data from the PATIENT CARE registry concerning an analysis in 2016 showed that in a group of 1408 post-MI patients who underwent CR, only 41.9% achieved low-density lipoprotein cholesterol (LDL-C) target levels,⁹ while in a subset of individuals of the EUROASPIRE IV survey who survived MI, a large proportion of patients were also off-target.¹⁰

Secondly, at baseline 30% of individuals were aged ≥ 65 years (with significant differences in terms of risk factors, prior coronary artery disease, and index event severity). This should be borne in mind especially when analyzing the data for glycated hemoglobin (HbA1C), as (particularly in settings prior to the widespread use of more recent agents, with a particular emphasis on CV benefits) this could have impacted HbA1C levels.^{3,9} Although data on specific agents, diabetes duration, and associated complications were not specifically addressed, these should be taken into account when making direct comparisons, particularly in terms of more intensive glycemic control.

When addressing different CVRFs, it should be mentioned that while the proportion of patients who achieved target goals for blood pressure was suboptimal, target levels for lipids (focusing on LDL-C, using cut-offs in the context of guidance in use at the time of sampling) and HbA1C were achieved in over 50% of participants, which is in accordance with subsequently proposed quality indicators for these programs.⁵ While, as reviewed in our article, we concur with the authors on the need for further optimization to enable improvements in these parameters, we believe these data are relevant in providing a useful framework in which to attempt to address some of the barriers to target attainment.

Finally, we view with great interest the progressive expansion of the promising field of mobile health (mHealth) in CV medicine, including its possible role in addressing some of the barriers to CR.¹¹ Of note, the COVID-19 pandemic has greatly influenced and accelerated this trend, with data showing the potential of different technological tools in improving CR utilization.⁹ Despite this, some questions remain in terms of the application of these platforms as well as of different CR methodologies.^{11,12} In this regard, it is of interest to note that Antunes et al. report on a total of 93 included patients, with 68 concluding a phase II program.¹ Difficulties in enrollment as well as completion have been previously described in different settings.

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Moreover, reports have highlighted the need for personalization, as some patients may prefer not to use some of these modalities.^{13,14} While we believe that these innovations may play a leading role in the future, helping to bridge various gaps concerning CR, these data demonstrate that further tailoring could still be of interest.

CR programs are pivotal in the management of individuals after MI.^{2,5} As our understanding of the manifold challenges in the management of these patients progresses, against a background rooted in a collaborative and integrative outlook derived from various areas, it remains critical to reflect on past and current paradigms while looking to address several potential pitfalls, both old and new, in the enduring quest for the optimal management of MI survivors.

Conflicts of interest

The authors have no conflicts of interest to declare.

References

- Antunes A, Cabral M, Morais J. Letter to the Editor regarding "Suboptimal control of cardiovascular risk factor control in myocardial infarction survivors in a cardiac rehabilitation program". *Rev Port Cardiol.* 2022, <http://dx.doi.org/10.1016/j.repc.2022.05.007>.
- Visseren FLJ, Mach F, Smulders YM, et al. 2021 ESC Guidelines on cardiovascular disease prevention in clinical practice. *Eur Heart J.* 2021;42:3227–337.
- Piepoli MF, Hoes AW, Agewall S, et al. 2016 European Guidelines on cardiovascular disease prevention in clinical practice: The Sixth Joint Task Force of the European Society of Cardiology and Other Societies on Cardiovascular Disease Prevention in Clinical Practice (constituted by representatives of 10 societies and by invited experts) developed with the special contribution of the European Association for Cardiovascular Prevention & Rehabilitation (EACPR). *Eur Heart J.* 2016;37:2315–81.
- Perk J, De Backer G, Gohlke H, et al. European Guidelines on cardiovascular disease prevention in clinical practice (version 2012). The Fifth Joint Task Force of the European Society of Cardiology and Other Societies on Cardiovascular Disease Prevention in Clinical Practice (constituted by representatives of nine societies and by invited experts). *Eur Heart J.* 2012;33:1635–701.
- Abreu A, Frederix I, Dendale P, et al. Standardization and quality improvement of secondary prevention through cardiovascular rehabilitation programmes in Europe: the avenue towards EAPC accreditation programme: a position statement of the Secondary Prevention and Rehabilitation Section of the European Association of Preventive Cardiology (EAPC). *Eur J Prev Cardiol.* 2020, <http://dx.doi.org/10.1177/2047487320924912>.
- Vilela EM, Ladeiras-Lopes R, Joao A, et al. Current role and future perspectives of cardiac rehabilitation in coronary heart disease. *World J Cardiol.* 2021;13:695–709.
- Fontes JP, Vilela EM, Durazzo A, et al. Current state of cardiac rehabilitation in Portugal: results of the 2019 national survey. *Rev Port Cardiol (Engl Ed).* 2021;40:877–87.
- Silva V, Matos Vilela E, Campos L, et al. Suboptimal control of cardiovascular risk factors in myocardial infarction survivors in a cardiac rehabilitation program. *Rev Port Cardiol (Engl Ed).* 2021;40:911–20.
- Schwaab B, Zeymer U, Jannowitz C, et al. Improvement of low-density lipoprotein cholesterol target achievement rates through cardiac rehabilitation for patients after ST elevation myocardial infarction or non-ST elevation myocardial infarction in Germany: results of the PATIENT CARE registry. *Eur J Prev Cardiol.* 2019;26:249–58.
- Kotseva K, Wood D, De Bacquer D, et al. Determinants of participation and risk factor control according to attendance in cardiac rehabilitation programmes in coronary patients in Europe: EUROASPIRE IV survey. *Eur J Prev Cardiol.* 2018;25:1242–51.
- Scherrenberg M, Wilhelm M, Hansen D, et al. 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. *Eur J Prev Cardiol.* 2020, <http://dx.doi.org/10.1177/2047487320939671>.
- Nkonde-Price C, Reynolds K, Najem M, et al. Comparison of home-based vs center-based cardiac rehabilitation in hospitalization medication adherence, and risk factor control among patients with cardiovascular disease. *JAMA Netw Open.* 2022;5:e2228720.
- Boyde M, Rankin J, Whitty JA, et al. Patient preferences for the delivery of cardiac rehabilitation. *Patient Educ Couns.* 2018;101:2162–9.
- Marcin T, Bengel C, Goldberg T, et al. Patient interest in mHealth as part of cardiac rehabilitation in Switzerland. *Swiss Med Wkly.* 2021;151:w20510.

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