ORIGINAL ARTICLE

Barriers to cardiovascular rehabilitation care in a northeast city of Brazil

Luciano Sá Teles de Almeida Santos[1], Emanuella Gomes[1], Júlia Vilaronga[1], Walleska Nunes[1], Alan Carlos Nery dos Santos[2], Fernanda Oliveira Baptista de Almeida[1], Jefferson Petto[3]

ABSTRACT

Identifying barriers by regions of Brazil can be a valuable strategy to improve the insertion and adherence of patients with cardiopathy to cardiovascular rehabilitation programs. **Objective:** To identify and describe the reasons that lead to the non-inclusion of individuals with cardiopathy in cardiovascular rehabilitation programs. **Methods:** Descriptive cross-sectional study with 79 individuals of both sexes, aged over 50 years, with cardiopathy from five private cardiology clinics. To identify the factors that interfered with the inclusion of patients in cardiovascular rehabilitation programs, the scale of barriers for cardiac rehabilitation was applied. This instrument is composed of 22 items, 21 of which are closed and objective questions. Individuals were instructed to tick "YES" or "NO" for each target item on the scale if they identified the item as a barrier to inclusion / adherence. **Results:** 64 (81%) of the sample did not know about the existence of cardiovascular rehabilitation and its benefits. For 50 (63%) the distance from the residence to the rehabilitation center was a barrier. In addition, the cost of urban mobility 37 (47%) and the lack of indication of the physician as unnecessary 32 (40%) were also pointed as barriers. **Conclusion:** The results of this study indicate that the main reasons for non-insertion in cardiovascular rehabilitation programs were the lack of knowledge about the benefits of this type of program, the distance of the patients' residence to the nearest center and the displacement cost.

Keywords: Cardiovascular Diseases, Heart Failure, Physical and Rehabilitation Medicine, Communication Barriers

[1] Fisioterapeuta.
[2] Professor Auxiliar, Universidade Salvador – UNIFACS.
[3] Professor, Faculdade Social da Bahia – FSBA.

Mailing address:
Alan Carlos Nery dos Santos
Rua Silveira Martins, 248
Salvador - BA
CEP 40301-110
E-mail: allannery.santos@hotmail.com

Received on June 05, 2017.
Received on November 04, 2017.

DOI: 10.5935/0104-7795.20170013

INTRODUCTION

Since a few decades, cardiovascular diseases (CVD) have shown high incidence rate and continue to be the main cause of morbidity and mortality in the world.[1] According to data from the Brazilian Society of Cardiology, CVD is responsible for twice the deaths caused by all types of cancer. According to this source, in 2016, there were more than 330,000 deaths caused by CVD in Brazil.[2]

The CVDs also represent an important public health problem because of the high cost they impose to the public health system, given the expense of medications, hospitalizations and high complexity care.[3,4] In addition, they affect individuals of productive age by imposing on them limitations/incapacity to work and even perform activities of daily life, what impacts not only quality of life but also on the social security system.[3,4]

It is known that the development of CVD is related to modifiable and non-modifiable risk factors. Among the non-modifiable are factors such as sex, age and genetic inheritance. On the other hand, the modifiable variables are related to behavioral traits and lifestyle, among them smoking, excessive consumption of alcoholic beverages, sedentary lifestyle, unhealthy eating habits, excess weight and metabolic changes.[5]

The identification of risk factors of higher population prevalence allowed well-conducted cardiovascular prevention programs in several countries to significantly reduce CVD mortality.[6] Thus, an approach to control modifiable risk factors seems to be efficient and necessary intervention for the adequate management of these diseases.

Changes in lifestyle and the adoption of healthier habits such as regular exercise and balanced eating are attitudes used at all levels of prevention. For secondary prevention, Cardiovascular Rehabilitation (CVR) is a strategy that brings several benefits for individuals with CVD, especially those at high risk.[7]

Despite the known benefits of CVR, a very small fraction of individuals with heart disease are enrolled in CVR programs. In the world, between 5% and 30% of eligible patients are referred to CVR facilities.[7] It is likely that lower numbers than these reflect the Brazilian reality.[7,8] The identification of the reasons for not including these patients is relevant to establish guidelines that modify this scenario. A good part of the Brazilian studies investigated these reasons from the cardiologists' point of view.[7,8,9] Other authors, although they did this survey by the patients' view, did so in specific regions of Brazil, such as São Paulo and Rio Grande do Sul.[10,11] However, these regions do not reflect the reality of the Brazilian Northeast, which has distinct cultural and socioeconomic characteristics.

Therefore, due to the scarcity of Brazilian studies that investigated these reasons from the patients' point of view, a study must be carried out, especially northeast region of Brazil.

OBJECTIVE

The objective of this study is to identify and describe the reasons that lead to the non-inclusion of individuals with heart disease in CVR programs in the city of Feira de Santana, BA.

METHODS

This is a descriptive cross-sectional study conducted in 2015 in the city of Feira de Santana, Bahia. The sample consisted of 79 CVD patients from five private cardiology clinics of that city. No patients were selected hospitalized.

The inclusion criteria of the study accepted individuals with diagnosis of CVD, specifically with heart failure who were eligible for CVR, and who those were being monitored on an outpatient facility. All the patients who accepted to participate in the research, before responding to the questionnaire, underwent a screening that aimed to identify patients who were eligible for CVR. This screening was done by a physical therapist specialized in CVR and with expertise of more than 15 years in the area. Patients who did not have any of the absolute contraindications described in the South American Guidelines for Cardiovascular Prevention and Rehabilitation were considered eligible.[7] During the screening, these data were collected: age, sex, presence of systemic arterial hypertension, dyslipidemias and diabetes. Subjects were also asked about regular physical exercise prior to the diagnosis of heart failure. Height and body mass were also collected to categorize the subject as eutrophic, overweight or obese.

The eligible patients were initially asked if they knew CVR and its benefits. If they had not been advised about the CVR and its benefits, the physiotherapist responsible for the screening informed the benefits of CVR and which CVR facilities were closest to the city of Feira de Santana-BA. Subsequently, they answered a questionnaire and listed the barriers that would hold them from entering an CVR program, even after learning about the benefits that the program could bring them. Individuals who presented any limitation to respond to the questionnaires, such as cognitive deficits or musculoskeletal limitations that made physical exercise unfeasible were no included in the study.

A total of 79 patients were screened, 63 (80%) of whom had systemic arterial hypertension, 53 (67%) overweight, 36 (46%) dyslipidemia, 32 (41%) diabetes mellitus and 12 (15%) obesity. Only two patients reported practicing physical exercise before being diagnosed with heart failure and the others declared they were sedentary. The majority of the sample consisted of male subjects 46 (58%), and 32 (41%) patients aged over 70 years.

A questionnaire called the Barrier Scale for Cardiac Rehabilitation (BSCR) was used to identify the factors that interfered with the inclusion of the patients in the CVR programs. The BSCR is a self-applied instrument, translated and validated into Portuguese by Ghisi et al.[12] which is composed of 22 items, 21 of which are closed and objective questions. Item 22 is an open and discursive question where individuals can report other reasons that prevent them from entering or maintaining adherence to the program. Individuals were instructed to indicate "YES" or "NO" for each question on the scale, if they identified or rejected the item as a barrier to inclusion or adherence to CVR, respectively.

Descriptive data analysis was used for the general characteristics of the sample and answers to the questionnaire questions. Data were analyzed with the aid of statistical software SPSS version 20.0.

Throughout the study, the guidelines on human research of the Resolution 466/12 of the Brazilian National Health Council were complied with. This study was submitted to the Research Ethics Committee of the *Faculdade Nobre de Feira de Santana, BA*, and was approved with protocol number 345/013. All subjects received detailed information on the study objectives described in the Informed Consent Form. It is important to emphasize that the identification data of the participants were ethically kept confidential, being held by the researcher responsible for 5 years, and will be destroyed soon after that.

RESULTS

Table 1 shows the responses to the EBRC. 64 subjects (81%) did not know about the existence of CVR and the benefits it brings. In addition, among the other factors that negatively impacted inclusion were the distance from the residence to the rehabilitation facility, as reported by 50 subjects (63%), the cost of urban mobility 37 (47%), and the lack of physician prescription 32 (40%).

DISCUSSION

Despite the benefits already well established in the literature, CVR is still a therapeutic strategy that is not widespread in Brazil and in the world. Again, in this study, the results confirm this reality. Almost all of the patients who participated in the study were not enrolled in an CVR program. The three items that were most cited as a barrier to insertion into an CVR program were the lack of awareness of CVR and its benefits, the distance to an CVR facility and the cost of mobility. Below, some hypotheses that may explain these results will be discussed and discussed.

Again, patients' lack of knowledge about what is and what benefits of CVR was the main barrier to the insertion of these patients. This is because other studies have cited the same problem as being the main factor in Brazil[8,11] and in other countries.[13,14] Therefore, the region does not seem to influence patients' knowledge about CVR, that is, the fact that this study has collected data in a Brazilian region with different cultural and economic characteristics of the south and southeast of Brazil, did not change the result in relation to this barrier.

Possibly the ignorance of these patients arises mainly from the non-instruction and orientation of the health professionals who assist them. It seems that this policy has changed little in Brazil, that is, professionals do not routinely inform their patients about the benefits of being enrolled in an CVR program. One of the reasons for this is the lack of knowledge of health professionals about cardiac rehabilitation facilities. In a study carried out in the city of Salvador, BA, it was verified that most cardiologists do not indicate CVR for their patients because they do not know specialized centers that offer this service.[8] There are still, mainly in the Brazilian northeast reality, lack of CVR facilities. This study was conducted in the second largest city of Bahia - Feira de Santana, a city with more than 700,000 inhabitants, and until this work was done, there was no CVR service in the city. These were the second and third largest barriers identified in this study - the distance to an CVR center and the cost of mobility, since the nearest center is 100km away, in the city of Salvador, BA.

One strategy that can be introduced to minimize patients' lack of knowledge about CVR was described by Fernandes et al.[15] in 2013. The authors introduced educational lectures on heart failure for patients in the waiting room of the practice and evaluated before and after the lectures their knowledge about their problem. They noted that there were substantial improvements in their understanding of their illness. Strategies like these should be introduced. Making brochures that explain what the benefits and benefits of CVR and distributing them in the waiting rooms of clinics and hospitals can be effective in improving patient awareness regarding the benefits of CVR. The health insurances should be disseminators of this service, since the CVR improves the cost-effectiveness of the treatment of this population.[16] In addition, health professionals themselves, nurses, physical therapists, physical education teachers, nutritionists and physicians should also have the habit of informing their patients about the benefits of CVR, even if these professionals are not directly involved with these programs.

Other strategies have emerged and may positively influence patients' adherence to CVR. An example is the home-based CVR program cited by Netto et al.[17] In this study, the adherence of individuals participating in conventional and home-based CVR programs was compared. The home-based group showed a higher participation.

Also, a good part of the sample answered that their doctor thought that supervised or guided physical exercises were not necessary, demonstrating that there may be a certain resistance of the doctors in indicating the CVR. All patients selected to

Table 1. Reasons that lead to non-adherence to monitored Cardiovascular Rehabilitation programs, Feira de Santana-Bahia, 2015

REASON	Yes	%
Distance to rehabilitation facility	50	63%
Mobility cost: fuel, bus tickets, etc.	44	56%
Expenses with transportation	37	47%
Family responsibilities	18	23%
Unaware of CVR benefits	64	81%
Consider that CVR is not necessary	18	23%
Practice physical exercises at home or in the community	22	28%
Bad weather	22	28%
Consider that physical exercises are tiring and painful	16	20%
Unavailability due to travel arrangements	9	11%
Little time available	18	23%
Labor responsibilities	8	10%
Lack of energy	22	28%
Impossibility due to other health problems	22	28%
Consider themselves too old to CVR	5	6%
Lack of medical prescription	32	40%
Consider that other people do not undertake CVR but feel healthy	16	20%
Consider that they can control their CVD on their own	20	25%
Were prescribed to a CVR program, but were not contacted yet	4	5%
Waited too long to be prescribed and start the program	16	20%
Decided to take care of their health on their own	17	21%
Other reasons	3	4%
TOTAL	79	100,0%

Yes: Identified as a barrier to inclusion or adherence; No: rejected the item is a barrier to inclusion or adherence.

participate in this study were screened as eligible for CVR. However, 40% of respondents said that their cardiologist physicians did not considered it necessary to enroll their patients in an CVR program, possibly because they believed that their patients could engage in physical activity without the supervision or guidance of specialized CV center professionals. Perhaps this is another reason that causes patients to be unaware of CVR, since most cardiologists believe that their patients are not more effectively benefited by a prescribed or supervised CVR program.

Cost was also considered a limiting factor for adherence. Considering the distance from the CVR center to the residence of the patients. They would have to pay the mobility cost, including bus fare or fuel expense. In addition, since there is only one public institution that offers the program, those individuals who were not contemplated would also have to pay for the treatment in private institutions, which is still not very accessible for the majority of the population. Agreeing with the findings of this study, Ghisi et al.[18] pointed out that the main barriers in Brazil for insertion/adherence to CVR programs are the lack of CVR facilities, the distance between the patients' home and the nearest center and the costs with CVR.

Following this idea, Gaalema et al.[19] analyzed the influence of financial aid to patients of CVR programs in the city of Vermont, USA. Individuals who received financial support had higher participation. The results of this intervention seem obvious. Financial support would be favorable in managing the cost barrier, especially for those with low socioeconomic status.

In Brazil there is a government program called non-homebased treatment - NHBT, established by *Portaria SAS*/Ministry of Health nº 055 of Feb/24/1999. The NHBT consists of providing transportation tickets for the users of the Brazilian Unified Health System, provided that the treatment is not offered in the public or contracted network of the city of the patients' residence and that there is a chance of improvements in the health condition.[20] This benefit could be used to reduce transportation costs of patients referred to CVR. However, most patients are unaware of this benefit.

In contrast to this study, Mair et al.[10] described that the factors that most negatively influenced patients' adherence to CVR were situations related to the travel arrangements or working conditions. However, because it was performed in a private hospital in the city of São Paulo, possibly the population of this study had a higher socioeconomic level than the present study. It can be seen that some barriers to CVR are peculiar to the profile of the population studied.

Among these peculiarities, it is stated that age may have been a factor that influenced the responses of the population of this study. The majority of patients interviewed were older than 70 years. It is already known that the elderly population may have greater barriers to CVR since they are less aware of the benefits of CVR, besides presenting other complications and comorbidities.[21] However, age cannot be considered a factor that makes it impossible to prescribe CVR. Similarly, Menezes et al.[22] assure that these patients should be encouraged to participate in these programs, as they have demonstrated benefits and low relative risk.

Finally, this study has some limitations such as the non-socioeconomic stratification and schooling of the sample and the fact that the population is restricted to an outpatient setting. Also, the lack of sample calculation to substantiate the power of the results is characterized as a limitation of the study.

CONCLUSION

The most frequent factors identified as barriers to CVR in this study were the lack of knowledge about the benefits of CVR, the distance of the patients' residence to the nearest CVR facility and the mobility cost. Thus, it is important to intensify the dissemination of knowledge about CVR to patients with cardiovascular problems, as well as greater public investment in the creation and facilitation of access to CVR centers given the already proven benefits of this intervention.

REFERENCES

1. World Heart Organization. Cardiovascular diseases (CVDs) [text on the Internet]. WHO: Geneva [cited 2016 Dec 02]. Available from: http://www.who.int/mediacentre/factsheets/fs317/es/.
2. Sociedade Brasileira de Cardiologia [sítio na Internet]. Rio de Janeiro: SBC; c2017 [citado 2017 Jan 05]. Disponível em: http://www.cardiometro.com.br.
3. Silva SM, Luiz RR, Pereira RA. Fatores de risco e proteção para doenças cardiovasculares em adultos de Cuiabá, Mato Grosso, Brasil. Rev Bras Epidemiol. 2015;18(2): 425-38. DOI: http://dx.doi.org/10.1590/1980-5497201500020011.
4. Andrade JP, Mattos LAP, Carvalho AC, Machado AC, Oliveira GMM. Programa Nacional de Qualificação de Médicos na Prevenção e Atenção Integral às Doenças Cardiovasculares. Arq Bras Cardiol. 2013; 100(3):203-11. DOI: http://dx.doi.org/10.5935/abc.20130061.
5. Mansur AP, Favarato D. Tendências da taxa de mortalidade por doenças cardiovasculares no Brasil, 1980-2012. Arq Bras Cardiol. 2016;107(1):20-5.
6. Sociedade Brasileira de Cardiologia. Diretriz de prevenção cardiovascular. Arq Bras Cardiol. 2013; 101(6Supl.2):1-63. DOI: http://dx.doi.org/10.5935/abc.2013s002.
7. Sociedade Brasileira de Cardiologia. Diretriz sul-americana de prevenção e reabilitação cardiovascular. Arq Bras Cardiol. 2014; 103(2Supl.1):1-31.
8. Petto J, Araújo PL, Garcia NL, Santos ACN, Gardenghi G. Fatores de impedimento ao encaminhamento para a reabilitação cardíaca supervisionada. Rev Bras Cardiol. 2013;26(5):364-8.
9. Castinheiras Neto AG, Turco VM, Venturim FO, Farinatti PTV. Reabilitação cardíaca após alta hospitalar no sistema público de saúde do município do Rio de Janeiro. Rev SOCERJ. 2008;21(6):399-403.
10. Mair V, Breda AP, Nunes ME, Matos LD. Evaluating compliance to a cardiac rehabilitation program in a private general hospital. Einstein (Sao Paulo). 2013;11(3):278-84. DOI: http://dx.doi.org/10.1590/S1679-45082013000300004
11. Aikawa P, Cintra ARS, Oliveira Júnior AS, Silva CTM, Pierucci JD, Afonso MS, et al. Reabilitação cardíaca em pacientes submetidos à cirurgia de revascularização do miocárdio. Rev Bras Med Esporte. 2014;20(1):55-8. DOI: http://dx.doi.org/10.1590/S1517-86922014000100011.
12. Ghisi GLM, Santos RZ, Schveitzer V, Barros AL, Recchi TL, Oh P, et al. Desenvolvimento e validação da versão em português da Escala de Barreiras para Reabilitação Cardíaca. Arq Bras Cardiol. 2012;98(4):344-52. DOI: http://dx.doi.org/10.1590/S0066-782X2012005000025.
13. Grace SL, Scholey P, Suskin N, Arthur HM, Brooks D, Jaglal S, Abramson BL, et al. A prospective comparison of cardiac rehabilitation enrollment following automatic vs usual referral. J Rehabil Med. 2007;39(3):239-45. DOI: http://dx.doi.org/10.2340/16501977-0046.
14. Daly J, Sindone AP, Thompson DR, Hancock K, Chang E, Davidson P. Barriers to participation in and adherence to cardiac rehabilitation programs: a critical literature review. Prog Cardiovasc Nurs. 2002;17(1):8-17. DOI: http://dx.doi.org/10.1111/j.0889-7204.2002.00614.x.
15. Fernandes AMS, Souza VS, Borges IC, Andrade DC, Luedy FA, Martins RR, et al. Atividade educativa na sala de espera com pacientes com insuficiência cardíaca. Rev Bras Cardiol. 2013;26(2):106-11.
16. Herman WH, Hoerger TJ, Brandle M, Hicks K, Sorensen S, Zhang P, et al. The cost-effectiveness of lifestyle modification or metformin in preventing type 2 diabetes in adults with impaired glucose tolerance. Ann Intern Med. 2005;142(5):323-32. DOI: http://dx.doi.org/10.7326/0003-4819-142-5-200503010-00007.
17. Schmitt Netto A, Araujo PB, Lima DP, Sties SW, Gonzáles AI, Aranha EE, et al. Análise da aderência em diferentes programas de reabilitação cardíaca: estudo preliminar. Cinergis.2016;17(2):140-5. DOI: http://dx.doi.org/10.17058/cinergis.v17i2.7552.

18. Ghisi GL, Santos RZ, Aranha EE, Nunes AD, Oh P, Benetti M, et al. Perceptions of barriers to cardiac rehabilitation use in Brazil. Vasc Health Risk Manag. 2013;9:485-91. DOI: http://dx.doi.org/10.2147/VHRM.S48213.
19. Gaalema DE, Savage PD, Rengo JL, Cutler AY, Higgins ST, Ades PA. Financial incentives to promote cardiac rehabilitation participation and adherence among Medicaid patients. Prev Med. 2016;92:47-50. DOI: http://dx.doi.org/10.1016/j.ypmed.2015.11.032.
20. Brasil. Ministério da Saúde. Portaria n. 55, de 24 de Fevereiro de 1999. Dispõe sobre a rotina do Tratamento Fora do Domicílio no Sistema Único de Saúde – SUS, com inclusão dos procedimentos específicos na tabela de procedimentos do Sistema de Informações Ambulatoriais do SIA / SUS e dá outras providências. Diário Oficial da República Federativa do Brasil, Brasília (DF); 1999 Fev 26; Secção 1:116-7.
21. Grace SL, Shanmugasegaram S, Gravely-Witte S, Brual J, Suskin N, Stewart DE. Barriers to cardiac rehabilitation: does age make a difference? J Cardiopulm Rehabil Prev. 2009 May-Jun;29(3):183-7. DOI: http://dx.doi.org/10.1097/HCR.0b013e3181a3333c.
22. Menezes AR, Lavie CJ, Milani RV, Arena RA, Church TS. Cardiac rehabilitation and exercise therapy in the elderly: Should we invest in the aged? J Geriatr Cardiol. 2012;9(1):68-75.