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Non-use of primary care routine consultations for individuals with hypertension

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Abstract *The objectives of this study were to identify, among individuals with hypertension, sociodemographic factors associated with non-use of routine medical appointments available in primary care and check if non-use of consultations interferes with noncompliance with pharmacotherapy, uncontrolled blood pressure and hospitalization. This is a cross-sectional study with random and stratified sampling. A total of 422 individuals living in the city of Maringá, Paraná, were interviewed. There were crude and adjusted analyses using logistic regression, estimating odds ratios and 95% confidence intervals. It was found that, in the six months preceding the interview, 47 (11.1%) individuals did not use routine appointments. Being male, nonwhite and using only public health services were associated with non-use of consultations. Most of those who did not use consultations also failed to comply with pharmacotherapy and presented dysregulated blood pressure. Healthcare professionals need to develop strategies in order to increase attendance of hypertensive individuals to medical appointments, giving priority to population groups of men, nonwhite individuals and those who use public health services. Greater use of consultations can assist in blood pressure control and reduce complications.*

Key words *Hypertension, Primary healthcare, Chronic disease, Doctor-patient relations*

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Introduction

Systemic arterial hypertension (SAH), a highly prevalent disease in the adult and elderly population, presents multifactorial genesis, insidious chronic character and oligo/asymptomatic evolution, which contributes to late diagnosis and the individual's noncompliance with the treatment, including failure to use routine consultations and group activities offered in Primary Care (PC)[1,2]. Among the main predisposing factors for non-use of consultations there are low socioeconomic level[3], being male[4], younger age[4], worse health self-perception[4], forgetfulness[5] and characteristics related to health assistance[5], such as the type of service used (SUS [Brazilian Unified Health System (*Sistema Único de Saúde*)] / others but SUS)[4].

In turn, non-use of routine consultations can be associated with the emergence and maintenance of poor compliance with drug therapy[6] and blood pressure unregulated[7], which may lead to hypertensive crises[8] and cerebrovascular complications, such as stroke and heart attack[9]. Such intercurrences are situations which demand urgent care of greater complexity, lead to hospitalizations, high costs to public funds and distress to the individual and his/her family[7-10], in addition to being the main causes of mortality in the world[11].

Previous studies have shown that regular attendance to routine consultations at PC services has a positive correlation with compliance with pharmacological and non-pharmacological therapy, favoring better control of the disease[2,7,12]. Moreover, blood pressure control is higher among users who are regularly followed up in PC and by Family Health Strategy (FHS) teams in comparison to other healthcare models[13].

In this sense, the care provided to the individual through routine medical consultations allows health professionals to learn about concrete aspects of the patient's life that have a direct influence on pharmacological and non-pharmacological treatments, such as, for instance, medication adverse effects, lifestyle, level of family support, and blood pressure control. By valuing these aspects, professionals can identify gaps between the education offered and the self-care performed, reinforcing at every visit, if necessary, the objectives and goals to be achieved in order to promote healthy life habits, essential to control the disease[10].

Despite the recognition of the importance of routine consultations, available in PC by means of spontaneous search, for the proper control of blood pressure, and although it is addressed in the "Primary Care Notebooks – SAH of the Brazilian Ministry of Health" that the patient, without additional risks, should attend medical consultations at least every six months[14], the Brazilian reality when it comes to healthcare practice is marked by low use of healthcare services regularly and preventively by users[15]. This leads to the following questions: 1) Are sociodemographic factors associated with non-use of medical consultations available in PC by individuals with SAH? 2) Are individuals who do not attend PC medical consultations more likely to not comply with pharmacotherapy, present worse blood pressure control and be hospitalized due to complications from the disease?

Learning the profile of individuals with SAH who do not use consultations available in PC will allow developing concrete actions that increment the search for and use of consultations and other activities developed at Primary Healthcare Units (PHU), favoring health promotion and aggravation prevention. In this way, face the importance of the theme for public health, the objectives of this study were to identify, among individuals with high blood pressure, sociodemographic factors associated with non-use of routine medical consultations available in Primary Care and find whether non-use of consultations interferes with noncompliance with pharmacotherapy, uncontrolled blood pressure and hospitalization.

Methods

This is a cross-sectional analytical study accomplished with individuals with SAH undergoing ambulatory treatment in PC, in the city of Maringá, Paraná, Brazil.

Maringá, a medium-large city with recent urbanization, presented in 2013 a Human Development Index (HDI) of 0.808 – considered very high – and had the third largest population in the state, approximately 350,000 inhabitants, of which more than 40,000 had SAH and were registered at PHUs.

On the occasion of data collection, the city had 25 PHUs and 65 FHS teams, which represented coverage of 75% of the population by said strategy. For the purposes of this research, by convenience, the area covered by the 23 PHUs located within the urban perimeter was used. The sample size was calculated based on the total number of individuals with SAH registered in the city (40,073). It was considered that 50% of

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those individuals could present the characteristic of interest (non-use of consultations), with a 5% estimate error and a 95% confidence interval. Another 10% was added for eventual losses, resulting in a sample of 422 individuals selected in a random and stratified manner, with distribution proportional to the total number of individuals with SAH registered at each PHU.

To do so, this study first identified the number of individuals with SAH at each stratum (PHU). Then, it calculated the relative weight of each stratum in the whole group of the city's hypertensive population. Finally, using software for the simple random sampling procedure, individuals with SAH from each PHU were selected, ensuring proportional representativeness. For instance, at the PHU with lower proportion of individuals with SAH 09 participants were drawn, while at the PHU with higher proportion 44 participants were drawn. For cases in which the individuals drawn did not meet inclusion criteria or declined to participate in the research, the next on the list was automatically invited to participate, and this operation was repeated up to three times.

The study inclusion criteria were: being aged 18 years old or over and started drug therapy at least one year ago. A total of 17 individuals were excluded, two women who were using hypertension drugs during gestation, whose consumption, at the moment of the interview, was no longer prescribed, and 15 individuals with a psychiatric diagnosis of acute mental disorder because, due to the very characteristics of the disease, they might not comply with therapy and attendance to medical consultations.

After the surveying at the PHUs of the addresses and telephone numbers of the individuals drawn, data collection itself was carried out, which occurred during December 2011 to March 2012 at the participants' homes, through semi-structured interviews. There was also consultation to their medical records for the surveying of information referring to the five last blood pressure readings recorded.

The study variables, chosen and ordered based on the theoretical model, are displayed in Figure 1. It was considered that non-use of routine medical consultations may suffer influence of individuals' demographic and economic characteristics and the type of service used[3,4]. At the same time, non-use of consultations may cause poor compliance with the pharmacological treatment, uncontrolled blood pressure and hospitalizations[2,8]. In this way, during data analysis non-use of medical consultations available in PC was at times taken as a dependent variable, at times as an exposure variable.

Based on the interviewee's self-report, it was considered as non-use of consultations when the individual reported not having attended over the past six months at least one routine medical consultation in PC, as recommended by the Prima-

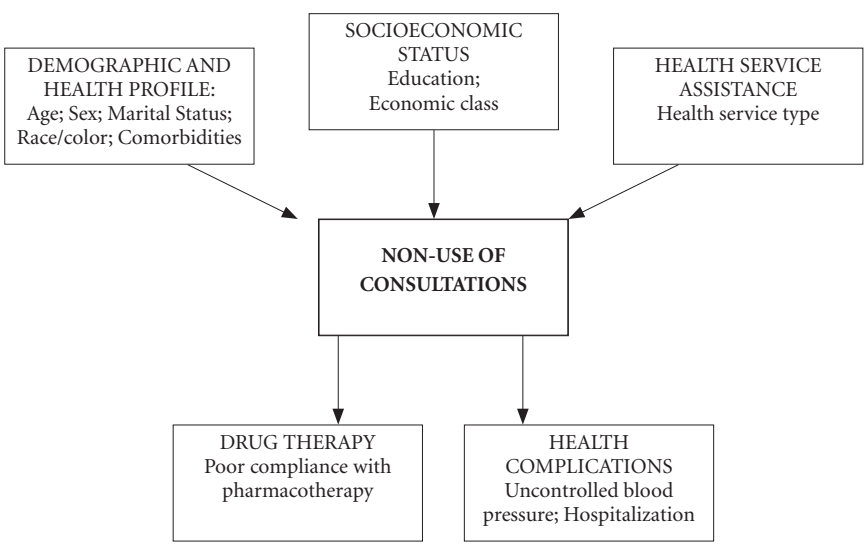

Figure 1. Possible factors associated to the non-use of routine consultations among individuals with high blood pressures and its consequences for self-care.

ry Healthcare Notebooks – SAH of the Brazilian Ministry of Health[14]. The independent variables were sex (male, female); race/color (white, nonwhite); marital status (partner, no partner); age (< 60 and ≥ 60 years old); presence of chronic comorbidities (yes, no); education (< 8 and ≥ 8 years old); economic class (A/B and C/D/E); type of health services used (SUS only/ SUS and private); noncompliance with pharmacotherapy; uncontrolled blood pressure and hospitalization.

The economic class was defined based on Brazil's Economic Classification Criteria (Brazilian Association of Research Companies, *Associação Brasileira de Empresas de Pesquisa* – ABEP), which has as reference education and consumption goods. Its use estimates the purchase power of individuals and families. In this study, the eight possible classes (A1-A2-B1-B2-C1-C2-D-E) were grouped into two types A/B (high purchase power) and C/D/E (low purchase power).

Noncompliance with pharmacotherapy was measured by the Drug Noncompliance Questionnaire of the Qualiaids Team (QAM-Q), developed to approach the act (whether the individual ingests and how much he/she ingests of these drugs), the process (how he/she ingests the drug within a seven-day period), and the compliance result (in this case, whether BP was controlled)[16]. The answers resulted in a compound measure, and the individuals regarded as complying were only those who reported having ingested, in a proper manner, from 80% to 120% of the doses prescribed and whose blood pressure was regular in the last reading (clinical outcome).

The classification of blood pressure values was based on national[2] and international[9] guidelines. Individuals with uncontrolled hypertension were those who, according to their medical records, within a maximum interval of one year, presented in three of the five last readings systolic blood pressure (SBP) higher than 140 mmHg and/or diastolic blood pressure (DBP) higher than 90 mmHg.

Hospitalization – dichotomic variable (yes/no) – was also correlated by the interviewees and, for the purposes of this study, only hospitalizations which had occurred in the year prior to the interview and which had derived from complications and/or aggravations from SAH were considered.

All information was typed on an Excel for Windows 2010® spreadsheet and then analyzed statistically with the aid of the STATA/SE® software, version 12 (Stata Corp, College Station, TX, USA). The association of independent variables with non-use of medical consultations in PC was estimated by Odds Ratio (OR) with the respective Confidence Intervals (CI) of 95% through logistic regression adjusted by multivariate model. To verify association between non-use of routine consultations and noncompliance with pharmacotherapy, uncontrolled blood pressure and hospitalization, the multivariate model was adjusted through the logistic regression technique as well, having as potential confounding factors sociodemographic characteristics, presence of comorbidities, economic status and type of health service used.

The study complied with all guidelines of Resolution 196/96 of the Brazilian National Health Council, in vigor at the time of data collection, and was approved by the Standing Ethics Committee on Research Involving Humans of the signatory institution.

Results

Of all 422 interviewees, 47 (11.1%) reported not having used, by spontaneous search, medical consultations available in PC over the six months prior to the interview. Most of them were female (OR: 2.78; 95%CI: 1.45-5.32), nonwhite (OR: 3.6; 95%CI: 1.83-7.08) and used only SUS services (OR: 2.03; 95%CI: 1.01-4.08) (Table 1).

Table 2 shows that chances are greater for noncompliance with drug treatment (OR: 2.93; 95%CI: 1.50-5.73) and uncontrolled blood pressure (OR: 6.23; 95%CI: 2.74-14.19) among individuals who did not attend routine consultations available in PC.

Discussion

The results of this study allowed verifying that, although there was low prevalence of non-use of routine consultations, men, nonwhite individuals and those who used SUS services only were more likely to not seek this type of assistance in PC. Individuals with such characteristics need to be looked at differently by healthcare professionals in order to be encouraged to seek medical consultation in a spontaneous and preventive way, with the aim of keeping track of their health and thus having their health needs better understood and met. This is relevant because those who did not use medical consultations were more likely to not comply with pharmacotherapy and present uncontrolled blood pressure.

Table 1. Distribution of factors associated with non-use of consultations in Primary Care by individuals with high blood pressure. Maringá, PR, Brazil, 2012.

Characteristic	Total		Use of consultations				OR (95%CI)*	OR (95%CI)* Multivariate
			Yes		No			
	n	%	n	%	n	%		
Sex								
Female	251	59.5	233	62.1	18	38.3	2.64	2.78
Male	171	40.5	142	37.8	29	61.7	(1.42 – 4.93)	(1.45 – 5.32)
Race/color								
White	296	70.1	274	73.1	22	46.8	3.08	3.60
Nonwhite	126	29.9	101	26.9	25	53.2	(1.66 – 5.71)	(1.83 – 7.08)
Marital status								
Partner	291	69.0	260	69.3	31	66.0	1.17	1.09
No partner	131	31.0	115	30.7	16	34.0	(0.61 – 2.22)	(0.55 – 2.17)
Age								
< 60 years old	157	37.2	143	38.1	14	29.8	1.45	1.94
≥ 60 years old	265	62.8	232	61.9	33	70.2	(0.75 – 2.81)	(0.89 – 4.21)
Presence of comorbidity								
No	164	38.9	151	40.3	13	27.7	1.76	1.91
Yes	258	61.1	224	59.7	34	72.3	(0.90 – 3.45)	(0.95 – 3.86)
Education								
< 8 years	326	77.2	290	77.3	36	76.6	1.04	2.39
≥ 8 years	96	22.8	85	22.7	11	23.4	(0.51 – 2.14)	(0.89 – 6.39)
Economic class								
A/B	119	28.2	108	28.8	11	23.4	1.32	1.38
C/D/E	303	71.8	267	71.2	36	76.6	(0.65 – 2.70)	(0.57 – 3.35)
Health service type								
SUS and Private	176	41.7	163	43.5	13	27,7	2.01	2.03
SUS only	246	58.3	212	56.5	34	72,3	(1.03 – 3.93)	(1.01 – 4.08)

*OR: Odds Ratio and CI: Confidence Interval.

Table 2. Consequences associated with non-use of consultations in Primary Care by individuals with hypertension. Maringá, PR, Brazil, 2012.

Variables	Use of consultations				OR (95%CI)*	OR (95%CI)* Multivariate
	Yes		No			
	n	%	N	%		
Model 1						
Pharmacotherapy noncompliance (n = 180)	148	39.5	32	68.1	3.27 (1.71 – 6.25)	2.93 (1.50 – 5.73)
Model 2						
Uncontrolled blood pressure (n = 176)	152	43.7	35	81.4	6.45 (2.91 – 14.32)	6.23 (2.74 – 14.19)
Model 3						
Hospitalization (n = 116)	95	25.3	21	44.7	2.38 (1.28 – 4.43)	1.84 (0.95 – 3.56)

*OR: Odds Ratio and CI: Confidence Interval. Models adjusted by sex, race/color, age, marital status, economic classification, presence of comorbidities, education and health service type.

Corroborating with the high percentage of individuals with SAH who reported not having used routine medical consultations in PC in this study, data from a national research showed that of the 257,816 Brazilian individuals interviewed, 70.6% had attended at least one medical consul-

tation in the past year, with SAH being associated to a larger number of consultations[15]. Another investigation conducted in northeastern Brazil with 340 individuals with SAH identified that nearly half was considered regularly followed up by PC. However, in that case, only patients who reported having attended three routine consultations or more in the last year were considered regularly followed up[7].

All these findings reinforce that individuals who have a chronic condition, like SAH, used more frequently PC services. With the aging of the population and the maintenance of a modern lifestyle marked by sedentariness, poor nutrition and high stress levels, there is a rise in the number of individuals with chronic conditions. Thus, offering quality assistance to this portion of the population is in our country a current and important challenge for healthcare managers and professionals[17].

It is relevant to consider that, despite the low frequency, the fact that individuals with SAH do not use at least one routine consultation within a 6-month period is an important public health issue. This situation can be seen and understood from two perspectives. Healthcare professionals may be providing assistance in disagreement with ministerial protocols – for excess of activities or for not giving the due importance to medical appointments for individuals with chronic conditions – which results in limited explanation to patients about the need for individual and systematic follow-up. In this way, individuals with SAH, for not being sufficiently clarified and convinced, do not recognize the need for and do not seek assistance.

On the other hand, it is possible that the patients themselves, although duly oriented about the relevance of going to health units for the proper follow-up of their disease may, willingly or due to some hindrance/problem, fail to seek this service. Thus, healthcare professionals from each PHU should attempt to comprehend the factors that lead patients with SAH to not use routine medical consultations in this area, having in mind that not all PHUs of the city studied adopting the practice of previously scheduling consultations for patients with SAH is a barrier to the use of PC consultations. For this reason, it is believed that previous scheduling of medical consultations, including with alternative times, can be a strategy to increase the presence of patients at PHUs.

More specifically, it was found that men had greater chances to not use PC consultations. This may derive from the fact that historically they have poorer knowledge about the disease, its aggravations and treatment, which favors a disregard for the therapy proposed, whereas women seek primary healthcare services earlier and more often[18]. A population-base study conducted in Brazil, grouping participants into "hypertensive" and "non-hypertensive" evidenced that women in both groups used medical consultations over the last 12 months[15].

The reason for the female predominance at primary healthcare services has been widely discussed in the literature, being characterized as a sociocultural reflex, motivated by gender issues and also by the organization form of services (service hours, profile of active healthcare professionals and geographic location of PHUs), which leads men to comply less to the treatment of chronic diseases[19]. This behavior is also observed in other countries, as pointed by a study about consultation rates among users of the PC network in the United Kingdom[20].

Concerning color skin, it is possible to observe that nonwhite individuals were more exposed to nonuse of routine consultations, a fact that is possibly related to other sociodemographic characteristics such as income, education and housing. A study conducted with 12,402 Brazilians identified greater use of ambulatory consultations among white individuals[21]. Whereas an investigation conducted with 200 low-income individuals in a capital of northeastern Brazil observed an upward trend of noncompliance with the anti-hypertension treatment according to skin color, being 46.4% among white individuals, 67.0% among mixed and 80.3% among black individuals[5].

Data of these studies, by evidencing the relationship between ethnicity and compliance with the treatment/use of ambulatory consultations, highlight the importance of more thorough analyses of its associations, bearing in mind the possibility that black individuals choose more often to quit therapy, including medical consultations. It is also important to stress that the literature points greater risk for cardiovascular events among the nonwhite population[18,22]. Thus, the absence of these patients at scheduled consultations may increase even more this group's risk for noncompliance with the treatment and uncontrolled blood pressure.

Individuals who had access to SUS healthcare services were more likely to not use routine medical consultations when compared to those who had access to private health plans or con-

sultations too. Such finding is corroborated by studies carried out in Colombia[23], United States[24] and Brazil[15]. In the national study, for instance, individuals with SAH who had access to health plans were nearly three times more likely to attend medical consultations[15]. In addition, it has already been identified that in Brazil preventive exams are performed more frequently by health plans[21]. This scenario may derive, among other factors, from the fact that individuals with better financial conditions to afford private health costs are also more educated, which is associated with better indices of use of medical consultations[4,21].

Non-use of routine consultations available in PC is influenced by several factors, as aforementioned, and as a consequence of this situation there might be noncompliance with drug treatment and uncontrolled blood pressure. Analogously, an investigation conducted in the United States with 338 individuals with SAH evidenced that greater periodicity of medical consultations meant greater knowledge about treatment and also proper blood pressure control[25]. This situation may indicate that greater concern of hypertensive individuals with their health condition, as well as access to and ties with health services and their professionals, generate greater knowledge about the chronic condition, which may contribute to a better compliance with the anti-hypertension therapy. Thus, access to healthcare services and medical consultations should be guaranteed to users, aiming to minimize the risks of noncompliance with the treatment[25].

Furthermore, it is possible to see that more frequent use of medical consultations by patients has an outstanding place among blood pressure control predictors[19]. The presence of the patient at the health unit is determinant to the proper handling of SAH, as it brings individual motivation and the latter, in turn, leads to attitudes that contribute to reducing BP. It is also worth highlighting that frequent consultations allow for better monitoring of blood pressure levels, as well as the opportunity of having better access to information, which serves as a base for strengthening compliance with therapy[19,26].

Study conducted in northeastern Brazil evidenced that attendance of individuals with SAH to routine consultations in PC represented a protection factor for proper blood pressure control[7]. Whereas a cohort study conducted in Germany with 410 individuals with SAH identified that, after one year of follow-up through routine consultations in PC, the patients' blood pressure control raised from 59% to 74%[27]. In this way, it is considered that proper follow-up of individuals with SAH has a direct impact on compliance with pharmacological and non-pharmacological treatment, which, in turn, has potential to control blood pressure rates properly.

However, it is worth pointing out that the work towards compliance with drug treatment and the increment of non-pharmacological measures cannot be restricted to medical consultations. Based on clinical practice and literature evidence[19,23], it is believed that the presence alone of individuals at consultations is not enough for compliance with the treatment and for the reduction of BP rates. From this perspective, a study carried out in Colombia evidenced that individuals with SAH valued the work method applied, the activities developed at the health unit, the quality of the care provided and the quality of interpersonal relationships and communication established between professional and patient, as the main factors that led patients to stick to consultations[23].

In this sense, in order to increase rates of use of routine consultations in PC, healthcare professionals should consider, during their practice, the aforementioned aspects. The adoption of practices centered on users demands the incorporation of relational attitudes such as welcoming and bonding. Listening to the needs of patients makes healthcare professionals broaden the operation and problem-solving capacity of the care provided. For such a purpose, the formation of a bond with users can increase the effectiveness of healthcare actions and favor their participation during assistance. This allows them to play their role of citizens, with autonomy, respect for talking, arguing and choosing rights, in addition to allowing their integration in the maintenance of their health and reduction of aggravations[7].

In fact, the evidence suggests that correct therapeutic follow-up decreases mortality, the number of emergency visits, of hospitalizations and promotes the patient's wellbeing, thus improving his and his family's quality of life[3]. Moreover, there is a worldwide discussion on the production and maintenance of healthcare systems that are financially sustainable with a focus on decreasing medical-hospital costs[1]. In Brazil every year the healthcare system calculates on average a million hospitalizations for circulatory system diseases, which account for a cost of about 800 million BRL[14]. When there is investment in preventive and health-promoting activities, for instance scheduled consultations, and when the population has access to primary healthcare ser-

vices which present satisfactory performance there is a considerable reduction in the number of hospitalizations for PC sensitive conditions, including aggravations from chronic conditions[28].

Despite possible limitations of this investigation, it is worth highlighting that the main one is related to the fact that the city studied is medium-large sized and located in the South region of the country, which limits the extrapolation of information and demands caution in the comparison of its findings. Non-use of medical consultations, in other realities, may be associated with other factors and trigger other consequences. It is also important to highlight that the study was conducted with individuals with SAH registered at the PHUs. In this way, those whose treatment was carried out through the private network only were not excluded. The findings therefore cover the population of individuals with SAH registered in the city's SUS. Finally, it is believed that the high percentage of individuals who reported having used consultations may be due to the information being self-reported, consisting of a possible bias of this study, since the interviewee might have answered that which he/she believed the researcher wanted to hear as an answer.

Even before these limitations, the study aggregates knowledge in the public health area. In short, it was evidenced that non-use of medical consultations available in PC was associated with factors such as being male, nonwhite and using public healthcare services exclusively. Also, those who did not use consultations were more likely to not comply with drug treatment and have dysregulated BP. These findings bring direct implications for the assistance practice, since the correct follow-up of the patient can prevent the onset of aggravations and complications related to the disease. It is worth pointing out the need for healthcare professionals to establish strategies that stimulate the search for and use of consultations available in PC by individuals with SAH, and for special attention to be given to male individuals.

In this sense, intervention strategies should be developed such as, for instance, campaigns for men, related to prostate cancer, with priority to men with SAH, since this type of campaign seems to have a positive impact on screening and disease prevention. In this way, PC professionals should be equipped and aware in order to work with the population with SAH with the aim of, according to their possibilities, increasing attendance to consultations and, therefore, compliance with drug therapy, as well as improving blood pressure control. This will have a positive impact on sanitary costs, since prevention is less expensive than the curative activity.

Collaborations

MS Barreto worked on the conception and development of the research, data collection and interpretation, writing of the article and approval of the version to be published; RD Mendonça, AM Pimenta and C Garcia-Vivar were responsible for data analysis and interpretation in the final writing of the article, and approval of the version to be published; and SS Marcon worked on the conception and development of the research, data interpretation, final writing of the article and approval of the version to be published.

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