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Epidemiological and quality of life analysis of patients with ANOCA

Análise epidemiológica e de qualidade de vida de pacientes com ANOCA

Análisis epidemiológico y de calidad de vida de pacientes con ANOCA

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Ana Carolina Mello Fontoura de Souza
ORCID: https://orcid.org/0000-0003-2324-1301
State University of Ponta Grossa, Brazil
E-mail: acmfs00@gmail.com
Mário Augusto Cray da Costa
ORCID: https://orcid.org/0000-0001-9377-9495
State University of Ponta Grossa, Brazil
E-mail: mariocraydacosta@gmail.com
Elise Souza dos Santos Reis
ORCID: https://orcid.org/0000-0002-4266-9779
State University of Ponta Grossa, Brazil
E-mail: relisesouzadossantos@gmail.com
Luiz Henrique Vargas de Andrade
ORCID: https://orcid.org/0000-0002-4566-6610
State University of Ponta Grossa, Brazil
E-mail: luizhva00@gmail.com
Tiago de Souza
ORCID: https://orcid.org/0000-0002-1267-2109
State University of Ponta Grossa, Brazil
E-mail: 15305340@uepg.br

Abstract
Introduction: A portion of patients affected by angina has ANOCA (angina with non-obstructive coronary arteries). Objectives: To determine the epidemiological and quality of life aspects of individuals with angina without coronary obstruction. Material and methods: This is an observational cross-sectional study, conducted by applying questionnaires (SAQ-7 and SF-36) in patients undergoing catheterization in a single hospital from September 2021 to June 2022, and who did not have significant coronary artery obstructions (≥50%). Results: Patients had a mean age of 59.2 years and 60.47% of the sample was female. The main comorbidities found were dyslipidemia (81.4%); hypertension (81.4%); and anxiety (55.81%). Regarding lifestyle habits, 67.44% of patients were sedentary and 34.88% were smokers. According to SAQ-7, for physical limitation, 34.88% patients were in the poor to fair grade. The quality of life had the worst results, with 86.05% of the sample presenting poor to fair. For SF-36, limitations for physical and emotional aspects had median of zero and functional capacity of 25. Discussion: ANOCA patients presented impacts mainly on quality of life, functional capacity, physical limitations, and limitations due to emotional problems, which is in agreement with literature data. Conclusion: Despite de absence of obstructive coronary lesions, patients with ANOCA have significant comorbidities and quality of life impairment, requiring atention from their physicians.
Keywords: Angina pectoris; Microvascular angina; Quality of life.

Resumo
Introdução: Uma parte dos pacientes afetados pela angina tem ANOCA (angina with non-obstructive coronary arteries). Objetivos: Determinar os aspectos epidemiológicos e de qualidade de vida de indivíduos com angina sem obstrução coronariana. Material e métodos: Estudo transversal observacional, conduzido através da aplicação de questionários (SAQ-7 e SF-36) em pacientes submetidos a cateterismo em um único hospital, de setembro de 2021 a junho de 2022, e que não apresentavam obstruções coronarianas significativas (≥50%). Resultados: Os pacientes tinham uma idade média de 59,2 anos e 60,47% da amostra era do sexo feminino. As principais comorbidades encontradas foram dislipidemia (81,4%); hipertensão arterial (81,4%); e ansiedade (55,81%). Em relação aos hábitos de vida, 67,44% dos pacientes eram sedentários e 34,88% eram fumantes. De acordo com o SAQ-7, para a limitação física, 34,88% dos pacientes estavam na classe ruim a razoável. A qualidade de vida teve os piores resultados, com 86,05% da amostra se apresentando em grau ruim a razoável. Para o SF-36, as limitações por aspectos físicos e emocionais tiveram mediana zero e a capacidade funcional de 25. Discussão: Os pacientes ANOCA apresentaram impactos principalmente na qualidade de vida, capacidade funcional, limitações físicas e limitações por problemas emocionais, o que está de acordo com os dados da literatura. Conclusão: Apesar da ausência de lesões coronarianas

obstrutivas, os pacientes com ANOCA apresentam comorbidades significativas e comprometimento da qualidade de vida, exigindo a atenção de seus médicos.
Palavras-chave: Angina pectoris; Angina microvascular; Qualidade de vida.

Resumen

Introducción: Una parte de los pacientes afectados por angina tienen ANOCA (angina with non-obstructive coronary arteries). Objetivos: Determinar los aspectos epidemiológicos y de calidad de vida de los individuos con angina de pecho sin obstrucción coronaria. Material y métodos: Estudio observacional transversal, realizado mediante la aplicación de cuestionarios (SAQ-7 y SF-36) en pacientes sometidos a cateterismo en un único hospital, desde septiembre de 2021 hasta junio de 2022, y que no presentaban obstrucción coronaria significativa (≥50%). Resultados: Los pacientes tenían una edad media de 59,2 años y el 60,47% de la muestra eran mujeres. Las principales comorbilidades encontradas fueron la dislipidemia (81,4%); la hipertensión (81,4%); y la ansiedad (55,81%). En cuanto a los hábitos de vida, el 67,44% de los pacientes eran sedentarios y el 34,88% eran fumadores. Según el SAQ-7, para la limitación física, el 34,88% de los pacientes se encontraban en la clase de mala a razonable. La calidad de vida obtuvo los peores resultados, con un 86,05% de la muestra en el grado de malo a razonable. Para el SF-36, las limitaciones por aspectos físicos y emocionales tenían una mediana de cero y la capacidad funcional de 25. Discusión: Los pacientes con ANOCA presentaron impactos principalmente en la calidad de vida, la capacidad funcional, las limitaciones físicas y las limitaciones por problemas emocionales, lo que concuerda con los datos de la literatura. Conclusión: A pesar de la ausencia de lesiones coronarias obstructivas, los pacientes con ANOCA presentan comorbilidades significativas y deterioro de la calidad de vida, que requieren la atención de sus médicos.
Palabras clave: Angina pectoris; Angina microvascular; Calidad de vida.

1. Introduction

Angina is a painful syndrome that affects about 112 million individuals worldwide and is typically characterized by: (1) discomfort, heaviness, compression, or burning; (2) retrosternal or precordial; (3) triggered by physical exertion and/or emotional stress; and (4) relieved at rest and with the use of nitrates (Gulati et al., 2021; Kunadian et al., 2020). According to Aggarwal et al. (2020), 3.14% of US adults have physician-diagnosed angina, which equates to 4,469,934 people in 2016. Each year, an estimated 500,000 new patients are diagnosed with angina in the United States (Ferreira & Berry, 2021).

Angina pectoris is a term proposed more than two centuries ago, and for much of that time it has been regarded as a synonym for coronary artery disease (CAD), whose pathophysiology lies in the obstruction of epicardial arteries by atherosclerotic plaques (Kaski et al., 2018). However, about 50% of patients undergoing elective cinecoronariography for angina have no coronary artery obstructions and can be classified as ANOCA (angina with non- obstructive coronary arteries) or INOCA (ischemia with non- obstructive coronary arteries), this when there is proof of ischemia by functional testing (Perera et al., 2022). In these cases, the pathophysiology behind angina is complex, being a mixture of microvascular dysfunction, spasm, endothelial dysfunction, platelet dysfunction, microemboli, impaired oxygen transport, and mitochondrial dysfunction (Marzilli et al., 2020).

The prevalence of ANOCA is variable, being cited by Villano, Lanza e Crea (2018) as being around 40% and up to 70% according to Kunadian et al.(2020). In addition to the high prevalence, attention has been drawn to the fact that patients with this condition have increased cardiovascular risk despite the absence of obvious obstructive coronary lesion on coronary angiography (Mehta et al., 2022). Angina in general, regardless of its cause, besides causing damage to the patient's physical condition, with difficulty in performing physical activity and poor general health, also leads to emotional changes (Jarab et al., 2020). In a study conducted by Schumann et al. (2021), INOCA was responsible for increased physical limitation, angina frequency, and lower quality of life when compared to patients with CAD.

Therefore, highlighting the importance of care to patients with ANOCA, the aim of our study was to evaluate the epidemiological and clinical aspects of ANOCA patients in a hospital in Ponta Grossa-PR/ Brazil, such as age, gender, body mass index (BMI), and associated symptoms (dyspnea, orthopnea, paroxysmal nocturnal dyspnea, dizziness, and lower limb edema). Additionally, to study the most prevalent comorbidities in this group and evaluate the quality of life of these

individuals for each of the domains covered in the questionnaires applied, namely: physical limitation; frequency of angina; general health status; functional capacity; limitations by physical aspects; limitations by emotional aspects; vitality; social aspects and pain.

2. Methodology

2.1 Type of Study

This is a cross-sectional, observational study, carried out by applying questionnaires and collecting data from patients with typical chest pain referred for coronary angiography at the Hospital Santa Casa de Misericórdia de Ponta Grossa (PR/Brazil) from September 2021 to June 2022. For the execution of this project, there was previous approval from the Research Ethics Committee of the State University of Ponta Grossa, through opinion 4.742.219.

2.2 Sample of Patients

We evaluated 43 patients undergoing non-emergency cardiac catheterization at Hospital Santa Casa de Misericórdia in Ponta Grossa (PR/Brazil) from September 2021 to June 2022, on Fridays.

2.3 Inclusion Criteria

All patients with chronic or acute non-ST-segment elevation coronary syndrome who underwent non- emergency coronary angiography and did not have significant coronary artery obstructions (≥50%). Individuals who signed the informed consent form, and who were physically and mentally able to answer the questionnaires were included.

2.4 Exclusion Criteria

Any patients who were unable to answer the questions or who underwent emergency catheterization were excluded. Also not included were those with out-of-hours cinecoronariography or outside the researchers' collection periods. Individuals with mental confusion and/or severe hearing impairment were excluded.

2.5 Studied Variables

In the catheterization waiting room, clinical and epidemiological data of the patients were collected. Initially, the epidemiological analysis involved: age; gender; height and weight (from which the body mass index was calculated). The patient's indications for catheterization were also studied. Then, chest pain was evaluated, classifying the intensity and associated symptoms, such as dyspnea; paroxysmal nocturnal dyspnea; orthopnea; dizziness, and lower limb edema.

Data was also collected regarding lifestyle habits (smoking and physical activity) and comorbidities, of which the following were investigated: Previous CAD; heart failure (HF); previous acute myocardial infarction (AMI); diabetes mellitus (DM); systemic arterial hypertension (SAH); chronic kidney disease (CKD); chronic obstructive pulmonary disease (COPD); previous stroke; hypo- and hyperthyroidism; dyslipidemia and mood disorders (anxiety and depression). To determine the potency of the statins, the following were considered as (1) low potency: simvastatin 10 mg; (2) medium potency: simvastatin 20-40 mg; and (3) high potency: atorvastatin 40-80 mg, rosuvastatin 20-40 mg, and simvastatin associated with ezetimibe. The patient's previous complementary exams were also studied, with emphasis on: previous cinecoronariography; echocardiogram; exercise test; stress echocardiogram, and myocardial scintigraphy.

After this first step, two validated and widely used questionnaires were applied for quality of life assessment, the Seattle Angina Questionnaire- *7* (SAQ-7) (Chan et al., 2014), specific for angina patients and the 36- Item Short Form Survey Instrument (SF-36) (RAND CORPORATION), used to assess quality of life in general. Both study the functional implication

of the disease and involve several domains, being for the SAQ-7 assessed: (1) physical limitation; (2) angina frequency and (3) quality of life, being made, at the end, an arithmetic mean of the three previous groups, which represents the overall health status. The categories within each domain were divided according to what was proposed by Chan et al. (2014).

For the SF-36, in turn, values are provided from 0 to 100, and the lowest values are related to the worst results in each of the classes, which are: (1) functional capacity; (2) limitations by physical aspects; (3) limitations by emotional aspects; (4) vitality; (5) emotional well-being; (6) social aspects; (7) pain, and (8) general health.

2.6 Statistical Analysis

Data were plotted and analyzed using EpiInfo 7.2.4.0® software. Initially, we performed a descriptive analysis of the data with simple (n) and relative (%) frequency estimates. All variables were tested for normality with the Kolgomorov Smirnov test. Normals were displayed in mean and non-normals in median.

3. Results

3.1 Epidemiological Analysis

A total of 43 patients were evaluated. Ages ranged from 38 to 79 years, with a mean of 59.2 years. Most of the patients were women (60.47%). According to BMI, 37.2% were overweight and 30.23% obese class I. The epidemiological data are shown in Table 1.

Table 1- Epidemiological characterization of the patients

Variable	Category	n (%)
Age average	-	59.20
Gender	Female	26 (60.47)
	Male	17 (39.53)
BMI	Normal (< 25)	10 (23.25)
	Overweight (25- 29.9)	16 (37.2)
	Obesity class I (30- 34.9)	13 (30.23)
	Obesity class II (35- 39.9)	4 (9.3)
	Obesity class III (≥40)	0 (0)

BMI= body mass index. Source: Authors.

3.2 Clinical Analysis

The main indication for catheterization was chest pain alone, in cases where there was no time or availability to request a prior ischemic test, or when the pre-test probability was high for CAD, and the ischemic test was dispensed with.

Six patients were indicated by a positive stress test for ischemia; three by altered stress echocardiography; one by scintigraphy indicating ischemia; and one by unstable angina. In Table 2, the indications were divided according to the presence or absence of previous complementary tests that justified the indication of catheterization (ischemic evidence or angiotomography with obstructions).

Table 2- Indications for cinecoronariography.

Classification	n (%)
Without prior tests	31 (72.09)
With prior tests	12 (27.91)

Source: Authors.

The intensity of angina was classified according to the Canadian Cardiovascular Society (CCS), and most patients were in class IV (72.09%), that is, with symptoms on minimal effort or at rest (Table 3).

Table 3- Classification of angina according to CCS.

Class	n (%)
Class I	3 (6.98)
Class II	7 (16.28)
Class III	2 (4.65)
Class IV	31 (72.09)

Source: Authors.

Dyspnea was a symptom reported by 35 (81.4%) patients, classified according to the New York Heart Association (NYHA) (Table 4). Most were in class IV (44.18%).

Table 4 - Classification of dyspnea according to NYHA.

Class	n (%)
Class I	1 (2.33)
Class II	11 (25.58)
Class III	4 (9.3)
Class IV	19 (44.18)

Source: Authors.

Regarding other symptoms, 48.84% reported paroxysmal nocturnal dyspnea, similar to the 44.19% with orthopnea. Dizziness was a common symptom, present in 72.09% of the individuals. Edema, in turn, was a complaint of 46.51% of patients. The prevalences are described in Table 5.

Table 5 - Associated Symptoms.

Variable	n (%)
Paroxysmal nocturnal dyspnea	21 (48.84)
Orthopnea	19 (44.19)
Dizziness	31 (72.09)
Lower limb edema	20 (46.51)

Source: Authors.

Regarding previous cardiovascular conditions, 23.26% of patients had previous CAD, 9.3% had already undergone angioplasty and 4.65% had undergone coronary artery bypass grafting (CABG). The data are presented in Table 6.

Table 6 - Previous cardiovascular conditions.

Variable	Category	n (%)
CAD	-	10 (23.26)
Previous AMI	-	10 (23.26)
Previous stroke	-	2 (4.65)
Heart failure	HFrEF	5 (11.62)
	HFpEF	1 (2.32)
	HFmrEF	2 (4.66)
Angioplasty	-	4 (9.3)
CABG	-	2 (4.65)

AMI= acute myocardial infarction; CABG= coronary artery bypass grafting; CAD= coronary artery disease; HFmrEF= heart failure with mildly reduced ejection fraction (40-50%); HFpEF= heart failure with preserved ejection fraction (>50%); HFrEF= heart failure with reduced ejection fraction. Source: Authors.

The most prevalent comorbidities in the sample were dyslipidemia (81.4%); hypertension (81.4%), and anxiety (55.81%). Regarding lifestyle habits, 67.44% of patients were sedentary and 34.88% were smokers (Table 7).

Table 7 - Comorbidities and lifestyle habits.

Variable	n (%)
Diabetes mellitus	16 (37.2)
Prediabetes	2 (4.65)
SAH	35 (81.4)
CKD*	9 (20.93)
COPD	5 (11.63)
Hypothyroidism	8 (18.6)
Hyperthyroidism	1 (2.33)
Dyslipidemia	35 (81.4)
Anxiety	24 (55.81)
Depression	13 (30.23)
Smoking	15 (34.88)
Sedentarism	29 (67.44)

COPD=chronic obstructive pulmonary disease; CKD=chronic kidney disease; SAH=systemic arterial hypertension. *Patients in class ≤G3a. Source: Authors.

The medications most used by the patients were statins (67.44%), mostly mild potency (58.13%). Beta-blockers were used by 46 (55.81%) of the sample. Regarding antihypertensives, angiotensin receptor blockers (ARBs) and thiazide diuretics were the most prevalent, being the medications of 44.19% and 25.58% of individuals, respectively.

The main hypoglycemic agents found were metformin (32.56%) and insulin (6.98%). The antidepressants used were selective serotonin reuptake inhibitors (SSRIs) and benzodiazepines, by 16.28% of the study patients. The analysis of all medications is described in Table 8.

Table 8 - Analysis of pre-catheterization medications.]

Medication	n (%)
AAS	24 (55.81)
Clopidogrel	6 (13.95)
Statins	29 (67.44)
Low potency	1 (2.33)
Mild potency	25 (58.13)
High potency	3 (6.98)
Ezetimibe	0 (0)
Fibrates	2 (4.65)
Antiarrhythmics	2 (4.65)
Nitrates	8 (18.6)
Trimetazidine	0 (0)
Betablockers	24 (55.81)
ACEi	9 (20.93)
ARBs	19 (44.19)
Thiazide diuretics	11 (25.58)
Potassium sparing diuretics	9 (20.93)
Loop diuretics	7 (16.28)
CCB	6 (13.95)
Sacubitril + valsartan	3 (6.98)
Digitalis	2 (4.65)
Warfarin	2 (4.65)
Rivaroxaban	1 (2.33)
Metformin	14 (32.56)
Insulin	3 (6.98)
SGLT2 inhibitors	0 (0)
Sulfonylureas	1 (2.33)
Levothyroxine	7 (16.28)
Allopurinol	0 (0)
SSRIS	7 (16.28)
Benzodiazepines	7 (16.28)

CCB= calcium channel blockers; ARB= angiotensin receptor blockers; ACEi= angiotensin-converting enzyme inhibitors; SSRI= selective serotonin reuptake inhibitors. Source: Authors.

3.3 Quality of Life

According to the SAQ-7, for physical limitation, 34.88% patients were in the poor to fair grade. The frequency of angina was uniform, with 20 (46.51%) classified as monthly angina. The quality of life was the one that presented the worst results, with 86.05% of the sample presenting poor to fair. The average of SAQ-7, which represents the general health status also had a predominance of patients (62.79%) in the poor to fair grade. The results are shown in Table 9.

Table 9 - Results of the Seattle Angina Questionnaire- 7.

Domain	Category	n (%)
Physical limitation	Poor to fair (0-49.9)	15 (34.88)
	Good (50-74.9)	14 (32.56)
	Excellent (75-100)	14 (32.56)
Angina frequency	Daily to weekly (0-59.9)	23 (53.49)
	Monthly (60-99.9)	20 (46.51)
Quality of life	Poor to fair (0-49.9)	37 (86.05)
	Good (50-74.9)	3 (6.98)
	Excellent (75-100)	3 (6.98)
Average (general condition)	Poor to fair (0-49.9)	27 (62.79)
	Good (50-74.9)	12 (27.91)
	Excellent (75-100)	4 (9.3)

Source: Authors.

According to the SF-36, in turn, the social aspects, that is, the interference of angina in relationships with family and friends were those that presented the least interference of the disease, with a median of 100, which can be explained by the fact that many patients believe they receive more attention due to the disease. Limitation by physical aspects was prominent, with a median of 0. Angina also caused great limitation by emotional problems, i.e., when the patient presents daily limitation due to anxiety, depression, or some other emotional difficulty. The results are shown in Table 10.

Table 10 - Results of the 36- Item Short Form Survey Instrument.

Domain	Median (DP); Range
Functional Capacity	25 (33.63); 0-100
Limitation by physical aspects	0 (39.17); 0-100
Limitation due to emotional problems	0 (43.89); 0-100
Vitality	70 (22.13); 0-90
Emotional well-being	64 (21.76); 16-96
Social aspects	100 (36.82); 0-100
Pain	32,5 (32.57); 0-100
General health	50 (20.18); 15-85

Source: Authors.

4. Discussion

The majority of our patients were women (60.47%), which is in agreement with the literature, since it is known that women have a lower pre-test probability of having coronary artery disease compared to men. In the 60 to 69 age group, females have a 16% probability, while males have 44%, reaching 27% and 52%, respectively, in those over 70 years old (Neumann et al., 2020). For age, our patients were relatively young, with a mean age of 59.2 years. In the study of Reynolds et al. (2022), ANOCA patients were three years younger than those with coronary obstructions.

In our sample, many patients did not undergo ischemic test before catheterization because they presented high pre-test probability, or in cases in which catheterization was considered urgent due to the characteristic of pain. In addition, there were cases of unavailability of the test at short notice by the public health system.

Importantly, for pain intensity, dyspnea, and associated symptoms (paroxysmal nocturnal dyspnea, orthopnea, dizziness, and edema), the prevalence was high, in which 72.09% and 44.18% of the patients were in class IV (CCS and NYHA, respectively). This may also help justify the impact on quality of life and emphasizes the clinical severity of patients

without obstructions. This patients also had a high prevalence of previous cardiovascular conditions, such as previous CAD and AMI.

In our study, the most prevalent comorbidities in the sample were dyslipidemia; hypertension, and anxiety. Regarding lifestyle habits, 67.44% of patients were sedentary and 34.88% were smokers. In a study published in 2022, female gender; the absence of hypertension; increased total cholesterol, LDL, and non-HDL cholesterol; and increased LDL/HDL ratio were related to the development of ANOCA. However, data in the literature differ regarding the lipid profile, with some demonstrating that patients without epicardial vessel lesion would have better lipid parameters (Wiśniewski et al., 2022). In a study of Patel et al. (2014), were predictors for nonobstructive CAD: female gender, younger patients, atypical chest pain, stress test with low-risk changes, absence of diabetes mellitus, increased BMI, and absence of dialysis CKD.

Despite the absence of lesions in coronary arteries, ANOCA is associated with more persistent symptoms, which leads to the need for unnecessary complementary tests repeatedly, increased hospital visits, decreased work capacity and quality of life (Meeder et al., 2021). Similar data were found in the study by Jespersen et al. (2013), in which the presence of persistent angina was associated with anxiety, depression, decreased quality of life, and functional capacity. According to Schumann et al.(2021), patients with INOCA had an impact on quality of life equivalent to that of patients after AMI and reversed sudden cardiac death, denoting the severity of the condition in the daily lives of individuals. In our research, ANOCA patients showed poor to fair quality of life, physical limitation and general condition. They also had bad results regarding emotional limitations and functional capacity. Therefore, our study emphasizes the importance of paying attention to patients with ANOCA, because despite the absence of epicardial obstruction, They have high rates of comorbidities and quality of life impairment.

Moreover, patients with INOCA have increased mortality, with higher risk for AMI and stroke when compared to the general population, highlighting the relevance of adequately treating comorbidities and paying attention to ANOCA (Reynolds et al., 2022). In Jespersen et al. (2012) study, such patients showed a significant increase in major cardiovascular events (mortality, hospitalization for AMI, HF, or stroke) when compared with the healthy population, in addition to death from general causes, even when adjusted for traditional cardiac risk factors.

In this context, attention by physicians is needed for patients with ANOCA, also highlighting the importance of having more access to complementary methods to determine myocardial ischemia and the etiology of angina without coronary obstructive lesion. For the determination of microvascular etiology, the coronary flow reserve study can be used, by measuring the flow of epicardial arteries, by magnetic resonance imaging or positron emission tomography. For the diagnosis of vasospastic etiology, in turn, the main test is the provocative with acetylcholine (Ford et al., 2020; Fu et al., 2022; Neumann et al., 2020).

Access to such diagnostic tests in Brazil, especially in the public system, is still limited; however, according to the consensus of EAPCI (European Association of Percutaneous Cardiovascular Interventions), the treatment of both microvascular and vasospastic etiologies may include calcium channel blockers (CCB), ACE inhibitors, high-potency statins, trimetazidine, and nicorandil. For the microvascular specifically, beta-blockers can be used, while in the vasospastic the long-acting nitrates stand out. This treatment also matches what is recommended in the 2019 European Society of Cardiology Guidelines for Chronic Coronary Syndromes (Neumann et al., 2020). According to Ford et al. (2020), long-acting nitrates should be avoided in patients with microvascular angina, as well as beta-blockers in vasospastic angina.

In the treatment of our patients, we noticed that high-potency statins were little used in ANOCA patients, which could be optimized after diagnosis. With regard to ACEI and CCBs, they were still little used, in only 20.93% and 13.95%, respectively. Beta-blockers, on the other hand, were used by more patients (55.81%) of the sample. Nitrates were medications of only 18.6% of the sample.

Regarding the limitations of our research, one can mention the difficulty of finding similar works in the literature, since most studies have as their main focus MINOCA (Myocardial Infarction and Nonobstructive Coronary Arteries) and not patients suffering from stable angina. It was not possible to perform laboratory analysis of the patients because many did not bring their complementary tests prior to the catheterization. In addition, the sample size was impaired in cases of patients who had communication difficulties, such as hearing impairment or mental confusion. There were also patients with COVID-19 who could not be interviewed due to isolation. Finally, another limitation is the fact that the sample was collected by convenience, and patients were interviewed on days when the researchers were present.

5. Conclusion

Patients with ANOCA in this sample were relatively young and with a higher prevalence of women. Regarding precordial pain and dyspnea, most patients had symptoms at rest or minimal efforts, and the most common associated symptoms were dizziness and paroxysmal nocturnal dyspnea. The main comorbidities found were dyslipidemia, hypertension, and anxiety, with a high prevalence of sedentarism. ANOCA patients presented impacts mainly on quality of life, functional capacity, physical limitations, and limitations due to emotional problems. More studies are needed on the quality of life of patients with stable angina and non-obstructive coronary arteries, since the literature emphasizes more on patients with MINOCA, that is, patients who already had a miocardial infarction, without valuing those with stable symptoms.

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