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Evaluation of Atherosclerotic Cardiovascular Disease Categories and Statin Use Based on 4 Groups of ACC-AHA Guidelines

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ABSTRACT

Background: Cardiovascular disease (CVD) is the predominant cause of mortality and morbidity globally. Statin therapy is an important part of managing cholesterol since it can help stop and treat atherosclerotic cardiovascular diseases (ASCVD). The aim of this study was to evaluate the effectiveness of statin therapy and the extent to which clinical practices comply with the 2018 ACC-AHA guidelines for the risk management of ASCVD. **Methods:** This retrospective descriptive analysis assessed the effectiveness of statin therapy and adherence to the latest ACC-AHA guidelines for managing ASCVD risk. After putting the participants into four risk groups, we looked at how well they followed the instructions for using statins. **Results:** According to the study's rules, 88.4% of patients were taking their medicine correctly, and 73.5% of patients were on statin therapy. The high adherence rate (81.0%) shows that taking statin medicine is necessary for better cardiovascular outcomes. However, it was found that 11.6% of patients were not taking statins correctly. This was either because they were not prescribed enough in the high-risk group or too much in the low-risk group. There was a strong link between taking statins and being older, being male, having been in the hospital before, and having other health problems such high blood pressure and diabetes ($p < 0.05$). **Conclusion:** The study's findings stress even more the need to keep improving statin medications and making sure that clinical processes follow the ACC-AHA guidelines for prescribing statins and assessing ASCVD risk. Future study should concentrate on the enduring impacts and strategies to reconcile the disparity between professional standards and clinical practice.

Keywords: ACC-AHA Guidelines; statin adherence; primary and secondary prevention; lipid management; statin prescription

1. INTRODUCTION

Cardiovascular disease (CVD) is an umbrella term for heart and blood vessel disorders. It's commonly linked to arterial fatty deposit buildup (atherosclerosis) and heightened blood clot risk.[1] CVD can also damage arteries in vital organs such as the brain, heart, kidneys, and eyes. While it's a leading cause of death and disability worldwide, accounting for approximately 17.9 million deaths annually. According to the World Health Organization (WHO), several types of CVD exist, with four main categories, including coronary heart disease, which occurs when oxygen-rich blood flow to the heart muscle is obstructed or diminished, increasing cardiac strain and potentially leading to: Angina, Heart Attack and Heart Failure, strokes, and transient ischemic attacks (TIAs), which happen when blood supply to a part of the brain is cut off, potentially causing brain damage or death. A transient ischemic attack (TIA or "mini-stroke") is similar but involves temporary brain blood flow disruption, peripheral arterial disease, which involves

blockages in limb arteries, usually affecting the legs, and aortic disease, affecting the aorta, the body's largest blood vessel, which transports blood from the heart throughout the body. An aortic aneurysm is characterized by the aorta's outward protrusion and weakened state. Although the condition is generally asymptomatic, there is a possibility of perforation, which could lead to a potentially fatal hemorrhage.[2]

Cardiovascular diseases (CVD) are the number one cause of morbidity and mortality in the US and worldwide,[3] with heart disease is the primary cause of death in men and women, accounting for 1 in 4 deaths in the US.[4] These conditions are typically the result of lifestyle choices, such as smoking, not exercising, and consuming poorly, which induce atherosclerosis, which is the hardening and constriction of arteries.[5] Preventive treatments, such as lifestyle modifications and pharmaceutical interventions such as statin use, are essential for improving public health outcomes and reducing the prevalence of CVD.[6] By addressing the contributory variables of CVD at an early stage, the global burden can be significantly reduced.[7]

ASCVD, or atherosclerotic cardiovascular disease of the coronary, aortic, and peripheral arteries, is the most prevalent cause of heart disease in the United States. The development of plaque in the walls of arteries is the result of the accumulation of cholesterol and fatty deposits.[8] Over time, these buildups can narrow the vessels and cause blockages. In ASCVD, the inner wall of blood vessels is damaged by hypertension, smoking, oxidative modifications, and high cholesterol levels.[9] The injury results in inflammatory responses that recruit and activate circulating mononuclear cells, which differentiate into macrophages. Macrophage content results in an increase in inflammatory cytokines, chemokine, and micro-vesicle release.[10] Due to a high cholesterol diet, low-density lipoprotein cholesterol (LDL-C) accumulates in these recruited and activated macrophages, resulting in an accumulation of cholesterol and other lipids. The vascular smooth muscle cells may also play an important role in signaling vessel damage and repair.[11,12] Over time, these accumulating cholesterol and lipid-laden cells and content become an unstable plaque that can result in plaque rupture, thrombosis, and ultimately myocardial infarction.[13] Although the exact events involved in plaque vulnerability leading to an acute ASCVD event are not well understood, inflammation likely plays an active role in the rupture of the vulnerable atheroma with its potential for thrombus formation.

Furthermore, thrombus formation is typically associated with ruptured plaques that have abundant plaque macrophages, providing further evidence for the importance of inflammation in the process leading to and including the acute event. ASCVD-related ailments continue to be the primary source of global morbidity and mortality.[13] There are many other causes and risk factors for heart disease too, but ASCVD specifically refers to the blockages that build up in the heart vessels and are typically the target of therapies.[14] Consequently, the American Heart Association is dedicated to advancing strategies that enhance longevity and quality of life.[15] Major risk factors and other risk factors are the two categories of factors that increase the risk of heart disease. There are five primary risk factors: obesity, diabetes mellitus, high blood pressure, elevated cholesterol, and cigarette smoking. Other risk factors include a family history of cardiac disease, psychological stress, alcohol use, a poor diet, and lack of exercise. Heart disease and arteriosclerosis are more likely to affect individuals who have a high number of these risk factors.[16,17]

Cardiovascular disease remains a substantial global health concern, with atherosclerotic cardiovascular disease (ASCVD) at the forefront and contributing significantly to global morbidity and mortality. As such, it is imperative to implement preventative and management strategies, particularly when they are combined with evidence-based pharmacological therapies. Statin drugs have become a mainstay among these, substantially reducing cardiovascular events in both primary prevention and those who have already been diagnosed and are attempting to prevent further problems.[16] Statins and its importance in reducing the incidence of CVS: statins are class of drugs, known as HMG CoA reductase inhibitors, works in the liver to prevent cholesterol synthesis.[18] Statins play a crucial role in the prevention and management of CVS by reducing the amount of cholesterol circulating in the blood and helping to reduce the buildup of atherosclerosis plaque in the arteries. Statins are most effective at lowering LDL (bad) cholesterol. They also help lower triglycerides (blood fats) and raise HDL (good) cholesterol.[19-21] Numerous studies have demonstrated that statins significantly reduce the risk of heart attacks and strokes in patients with high cholesterol or those at high risk for atherosclerotic cardiovascular disease ASCVD.[22,23] Statin therapy is the cornerstone in preventing major

cardiovascular events and become one of the most widely prescribed and effective strategies in reducing the global burden of CVD.[24,25]

In order to diagnose and manage ASCVD risk, healthcare practitioners continue to extensively rely on the American Heart Association (AHA) and the American College of Cardiology (ACC).[26,27] These recommendations give a highly organized, patient-specific way to prescribe statins that takes into consideration the person's specific risk factors instead of just giving broad advice. These recommendations and suggestions put people into four risk groups (low, moderate, high, and extremely high) based on things like their age, cholesterol levels, other health problems they may have, and how they live their lives. The new 2018 ACC-AHA recommendations take risk classification to the next level by utilizing resources such as the ASCVD Risk Calculator. Clinical judgment is more important than data when modifying the dosage of statin to accommodate the individual risk profile of each patient.[22,23,28] However, in real life, these suggestions don't always make things clearer. In reality, there is a constant gap between what conventions say should happen and what really does. This study concentrates on the "real-world implementation of ASCVD risk categories" and "statin use" to fill this gap. It will ascertain whether clinical practices adhere to or diverge from the ACC-AHA guidelines. The study endeavors to identify these discrepancies in order to contribute to the current effort to improve cardiovascular risk management, with the ultimate objective of improving patient outcomes globally. Twenty-four. The ACC-AHA Guidelines categorize patients with Clinical ASCVD who have experienced a cardiovascular event, such as a heart attack or stroke, into four categories. Statin medication is strongly advised to prevent the recurrence of comparable incidents. Individuals with LDL-C levels exceeding 190 mg/dL: For patients who are at a high risk for ASCVD and have extremely elevated cholesterol levels, it may be advantageous to administer a strong statin treatment. Patients aged 40–75 who have diabetes are advised to take statins to reduce their risk of cardiovascular disease, particularly if they have additional risk factors. Individuals with a 10-Year ASCVD Risk > 7.5% have a moderate to high probability of experiencing a cardiovascular event within the next decade, as indicated by a risk calculator. Patients may be given statins based on how likely they are to have problems. (25) (26). The goal of this study is to look at advanced theories of atherosclerotic cardiovascular disease (ASCVD) and come up with an algorithm that combines these theories to make it easier to avoid ASCVD in both primary and secondary ways. Dietary changes and antiplatelet drugs are essential parts of a complete treatment plan for ASCVD. Statins are the most effective lipid-lowering medications used in clinical practice to lower the risk of death and disease from ASCVD when dyslipidemia is common. There has been a lot of improvement in statin therapy since the first statin was manufactured and approved thirty years ago. Subsequently, numerous investigations have been implemented to assess the efficacy, safety, morbidity, and mortality of lipid-lowering medications. New guidelines were established to incorporate new information and adjust the various statin recommendations and indications. The 2018 guidelines are the most comprehensive and up-to-date clinical guidelines available. In 2013, the most recent recommendations for the prevention of ASCVD were issued. Many articles have been published since then regarding the complex concept of ASCVD and novel pharmaceuticals. The objective of this investigation is to evaluate the current state of evidence-based concepts and to propose advanced themes and inquiries concerning ASCVD's novel concepts.[26,29,30]

Rapidly, the assessment of ASCVD risk and the use of statin medication becomes a critical clinical issue. It is imperative that healthcare providers assess their current procedures in relation to the ACC-AHA guidelines in order to alleviate the burden of cardiovascular disease. It is anticipated that this research will provide significant insights into the patterns of statin use, thereby facilitating the development of personalized treatments that enhance cardiovascular risk management and substantially enhance patient outcomes.[28,31] The primary goal of the investigation is to assess the efficacy of statin therapy and adherence to the ACC-AHA guidelines in the management of atherosclerotic cardiovascular disease (ASCVD) in at-risk individuals. The secondary objectives include comparing the actual statin use to the ACC-AHA guideline recommendations, evaluating the degree of statin use among high-risk patients, and determining the proportion of patients in each ASCVD risk category.

2. METHODS

This study was conducted at the Cardiology Department of Al-Thawra General Hospital. This study comprised of the following retrospective descriptive

study was conducted to evaluate the appropriateness of statin use and adherence to the latest ACC-AHA guidelines for the management of atherosclerotic cardiovascular disease (ASCVD risk. A total of 200 participants were recruited from the Cardiology Department at Al-Thawra General Hospital -Cardiology Department over 12 months. All of whom met inclusion criteria for cardiovascular disease or were at risk of ASCVD. The primary aim was to categorize patients based on their ASCVD risk profile and assess the prescription and appropriateness of statin therapy according to ACC-AHA guideline recommendations. A random sample have been selected to represent a number of patients within the study period.

Research participants were divided into four risk categories in accordance with the 2018 American College of Cardiology-American Heart Association guidelines for the prevention of atherosclerotic cardiovascular disease and the management of blood cholesterol. Individuals who had a documented history of atherosclerotic cardiovascular disease, including peripheral arterial disease, coronary artery disease, or stroke, were determined to have clinical ASCVD. These individuals were identified using medical records and prior clinical diagnoses. At least 190 mg/dL of LDL-C was in Group 2. The lab tests done on the individuals in this group showed that their starting low-density lipoprotein cholesterol (LDL-C) levels were 190 mg/dL or higher. These people are more likely to get ASCVD because their lipid levels are higher. People with diabetes are in Group 3. The participants in this study were either type 1 or type 2 diabetics, with LDL-C levels between 70 and 189 mg/dL, and their ages varied from 40 to 75 years. Medical records and test results were used to find these people. People in Group 4 had a 10-year ASCVD risk of more than 7.5%. Participants were deemed eligible if their projected 10-year ASCVD risk score was 7.5% or above, irrespective of their previous diabetes or ASCVD history. The ACC-AHA Pooled Cohort Equations were used to figure up the ASCVD risk score. These equations looked at age, gender, race, total cholesterol, HDL cholesterol, blood pressure, smoking status, and diabetes. By using these particular classification criteria, the study was able to do a more focused investigation of how well statin prescriptions worked for people with different levels of ASCVD risk. This made sure that each person was put in the right risk group based on their clinical and biochemical profiles.[31,32] The 2018 ACC-AHA recommendations put people into four groups based on their risk of ASCVD. Patients were categorized into four groups: low, moderate, high, and very high, based on their clinical characteristics and risk profiles. The ACC-AHA risk criteria and clinical guidelines were used to see if statin drugs were good for primary or secondary prevention. We checked how well patients were taking their statin medications by comparing their self-reports with prescription data. Adherence was characterized as the consumption of a minimum of 80% of the prescribed dosages throughout a 12-month period.

To be eligible, participants were required to provide comprehensive clinical and biodemographic data, have a diagnosis of cardiovascular disease or be at risk for atherosclerotic cardiovascular disease (ASCVD) based on a 10-year ASCVD score, and be a minimum of eighteen years old. Statin medication was not allowed for people who had medical problems or incidents that were not connected to ASCVD.

Structured interviews and patient medical records were employed to collect data. Demographic information included age, sex, level of education, smoking behaviors, and Qat-chewing habits. The clinical data included BMI, blood pressure, lipid profiles, stages of chronic renal disease, comorbidities, statin use, and the risk category for atherosclerotic cardiovascular disease. We used the Statistical Package for the Social Sciences (SPSS) to organize and look at the data. The clinical and demographic data of the study subjects were collected using descriptive statistics. Categorical variables were represented using frequencies and percentages, while continuous data were reported using means ± SD. "Chi-square tests" were implemented to evaluate the correlation between patient variables and statin use, with a significance level of $p < 0.05$. In order to identify independent factors that influence adherence to statin therapy and the ACC-AHA guidelines, the "logistic regression model" was implemented. The appropriate use of statins was determined by employing Daniel's method to determine the necessary sample size.

The intended sample size is denoted by n, and the formula is $n = \frac{Z^2 \times P\ (1-P)}{d^2}$.

Where,

Z is the Z-score that corresponds to the necessary level of confidence (1.96 for 95% confidence);

P is the anticipated prevalence or proportion of suitable statin use, which is used to optimize the sample size. If the expected prevalence or proportion is unknown, 50% or 0.5 is assumed; and

d represents the error margin or accuracy, which is frequently expressed as 5% or 0.05. Substituting the values into the formula:

$$n = \frac{1.96^2\,(0.5)(1-0.5)}{(0.05)^2} = 384 \text{ patients}$$

The Scientific Research Ethics Committee of Sana'a University in the Republic of Yemen approved this study (Approval number: IEC/SRC/SU/2023/EX.21/009/23). All procedures involving human volunteers were conducted in accordance with the ethical guidelines established by the committee and the 1964 Helsinki Declaration and its subsequent revisions.

3. RESULTS

Table 1 shows the biodemographic information for 200 people. The patients' average age was 55.3 years, with a standard deviation of 11.62. In terms of education, 48.0% of the people who took part could not read or write, 17.5% had finished elementary school, 15.0% had finished high school, and 19.5% had a college degree or above. Only 22.5% of people who answered said they smoked, while 77.5% did not. Participants consistently consumed qat, with 65.5% indicating habitual use. In terms of clinical experience, 56.0% of the participants had been hospitalized in the past. Body mass index (BMI) data indicated that 19.0% of the population was obese, 36.0% were overweight, and 43.0% had a normal BMI. Only 2.0 percent of the participants were underweighted.

3.1 Clinical Characteristics and Treatment of Patients with Cardiovascular Disease

The clinical characteristics of patients with cardiovascular disease indicated that a substantial proportion of the population belonged to higher-risk groups for atherosclerotic cardiovascular disease. Specifically, 37.5% were classified as very high risk, 26.0% as high risk, 21.0% as moderate risk, and only 15.5% were in the low-risk category. In terms of chronic kidney disease (CKD), 45.5% of patients were in Stage 1, followed by 29.0% in Stage 2, 23.0% in Stage 3, and only 2.5% in Stage 4. Furthermore, a large majority (85.0%) had elevated low-density lipoprotein cholesterol (LDL-C), and 33.0% had high blood pressure. In terms of diagnosis, hypertension (HTN) was a common factor, with a combination of HTN and dyslipidemia seen in 19.0% of patients. The majority (83.9%) of the study population had comorbid conditions. Statins were widely used, with 73.5% of patients on statin therapy, primarily for primary prevention (51.7%) and secondary prevention (42.9%).

Table 1. Sociodemographic characteristics of study participants (n=200)

Characteristic	Frequency	Percentage
Age, mean (SD)	55.3 (11.62)	
Gender		
Male	121	60.5
Female	79	39.5
Education level		
Illiterate	96	48.0
Primary school	35	17.5
Secondary school	30	15.0
University/Higher	39	19.5
Smoking status		
Yes	45	22.5
No	155	77.5
Qat chewing		
Yes	131	65.5
No	69	34.5
History of hospital admission		
Yes	112	56.0
No	88	44.0
Body mass index (BMI)		
Underweight	4	2.0
Normal	86	43.0
Overweight	72	36.0
Obese	38	19.0

The majority (88.4%) of the patients were using statins appropriately, and 81.0% of the statin prescriptions adhered to guidelines as shown in Table 2, Figure 1, and Figure 2.

Table 2. Clinical characteristics and management of patients with cardiovascular disease

Characteristic		N	%
ASCVD category	Low	31	15.5
	moderate risk	42	21.0
	High	52	26.0
	Very high	75	37.5
CKD stage	Stage 1	91	45.5
	Stage 2	58	29.0
	Stage 3	46	23.0
	Stage 4	5	2.5
	Stage 4	0	0.0
LDL-C	Normal	30	15.0
	High	170	85.0
Blood pressure	Normal	134	67.0
	High	66	33.0
Diagnosis	HTN	32	16.0
	HTN, IHD, dyslipidemia	40	20.0

continued on next page

Table 2. (*continued*)

Characteristic		N	%
	HTN, IHD, DM, dyslipidemia	17	8.5
	HTN, DM, dyslipidemia	41	20.5
	HTN, Stroke, dyslipidemia	2	1.0
	HTN, dyslipidemia	38	19.0
	HTN, HF	4	2.0
	HTN, HF, DM, dyslipidemia	7	3.5
	HTN, HF, dyslipidemia	6	3.0
	HTN, IHD	5	2.5
	HTN, HF, DM, IHD, dyslipidemia	1	0.5
	HTN, DM, IHD	2	1.0
	HTN, HF, IHD, dyslipidemia	5	2.5
Comorbidity	Yes	167	83.9
	No	32	16.1
Statin use	Yes	147	73.5
	No	53	26.5
Reason for statin use	Primary prevention	76	51.7
	Secondary prevention	63	42.9
	Use without indication	8	5.4
Appropriate use of statin	Appropriate	130	88.4
	Inappropriate	17	11.6
Adherence to the guideline	Adherence	162	81.0
	Non-adherence	38	19.0

ASCVD: Atherosclerotic cardiovascular disease; CKD: Chronic kidney disease; LDL-C: Low-density lipoprotein cholesterol; HTN: Hypertension; IHD: Ischemic heart disease; DM: Diabetes mellitus; HF: Heart failure

3.2 Association Between Statin Use and Patients' Demographic and Clinical Data

The association between statin use and patients' demographic and clinical data revealed significant correlations with age, gender, history of hospital admission, ASCVD category, blood pressure, and comorbidity. Statin use was more common among patients older than 55 years compared to those aged 55 years or younger (80.9% vs. 67.6%, p = 0.034). Additionally, males were significantly more likely to use statins compared to females (81.0% vs. 62.0%, p = 0.003). A history of hospital admission was associated with higher statin use (81.3% vs. 63.6%, p = 0.005). Statin use was also significantly more frequent among patients in the very high ASCVD risk category compared to those in the low-risk category (88.0% vs. 9.7%, p < 0.001).

Other clinical factors were associated with statin use, including blood pressure and comorbidities. Patients with high blood pressure had a higher prevalence of stain use compared to those with normal blood pressure (84.8% vs. 67.9%, p=0.011). Moreover, patients with comorbidities were significantly more likely to use statins compared to those without comorbidities (83.2% vs. 21.9%, p < 0.001). No significant associations were found between statin use and smoking status, qat chewing, education level, CKD stages, or LDL-C levels, as shown in Table 3.

4. DISCUSSION

Cardiovascular disease (CVD) is the most prevalent cause of mortality and morbidity worldwide. In this investigation, the categories of ASCVD and the use of

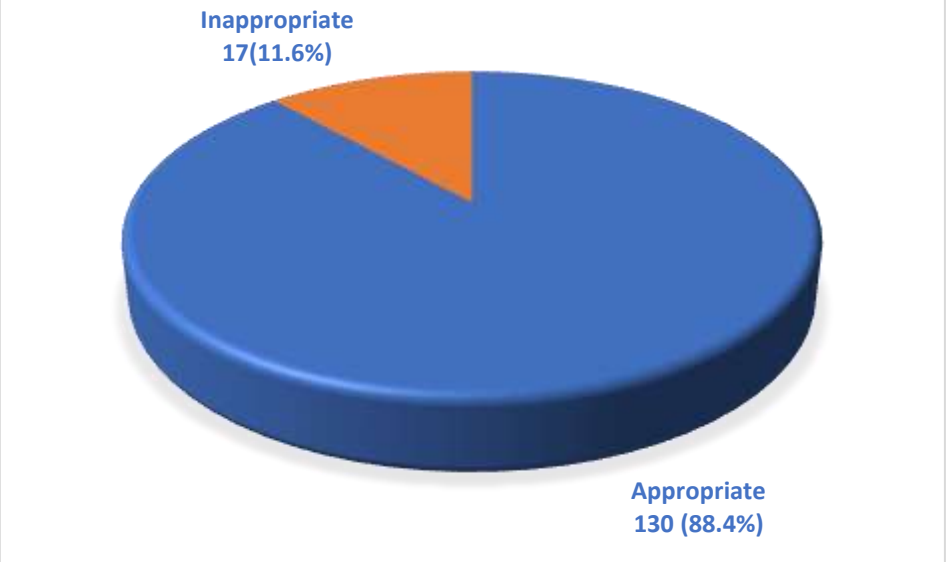

Figure 1. Appropriate use of statin

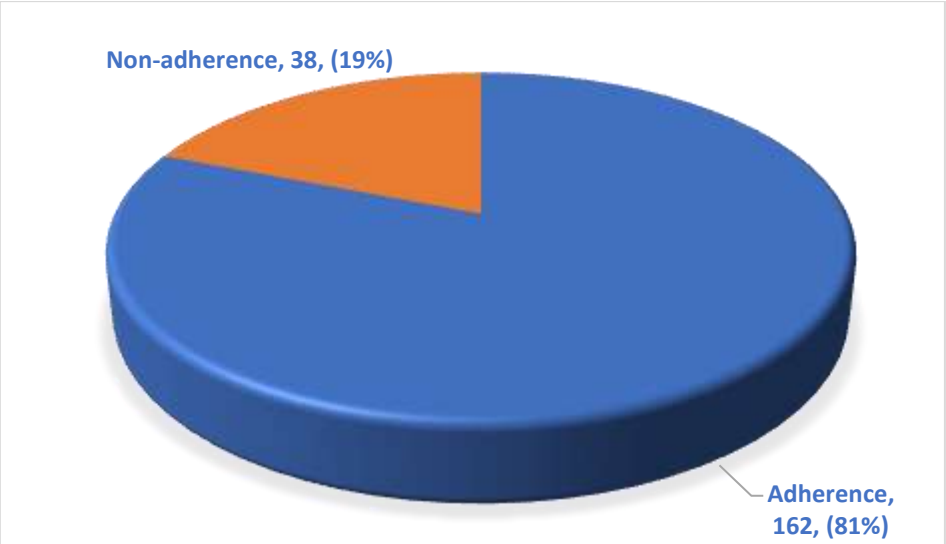

Figure 2. Adherence to the guideline

Table 3. Association between statin use and patients' demographic and clinical data (n=200)

Variable		Yes (Statin use)		No (Statin use)		Chi-square	*p*-value
		N	%	N	%		
Age	≤ 55 years	75	67.6	36	32.4	4.507	0.034*
	> 55 years	72	80.9	17	19.1		
Gender	Male	98	81.0	23	19.0	8.827	0.003*
	Female	49	62.0	30	38.0		
Education Level	Illiterate	75	78.1	21	21.9	5.174	0.160
	Primary	28	80.0	7	20.0		
	Secondary	19	63.3	11	36.7		
	University/Higher	25	64.1	14	35.9		
Smoking status	Yes	33	73.3	12	26.7	0.001	0.977
	No	114	73.5	41	26.5		
Qat chewing	Yes	100	76.3	31	23.7	1.568	0.211
	No	47	68.1	22	31.9		
History of hospital admission	Yes	91	81.3	21	18.8	7.849	0.005*
	No	56	63.6	32	36.4		
ASCVD Category	Low	3	9.7	28	90.3	79.453	<0.001*
	moderate risk	38	90.5	4	9.5		
	High	40	76.9	12	23.1		
	Very high	66	88.0	9	12.0		
CKD Stage	Stage 1	62	68.1	29	31.9	2.757	0.431b
	Stage 2	44	75.9	14	24.1		
	Stage 3	37	80.4	9	19.6		
	Stage 4	4	80.0	1	20.0		
LDL-C	Normal	20	66.7	10	33.3	0.846	0.358
	High	127	74.7	43	25.3		
Blood Pressure	Normal	91	67.9	43	32.1	6.513	0.011*
	High	56	84.8	10	15.2		
Comorbidity	Yes	139	83.2	28	16.8	51.742	<0.001*
	No	7	21.9	25	78.1		

*Statistical significance ($p < 0.05$); Abbreviations: CKD: chronic kidney disease, LDL: low density lipoprotein, ASCVD: atherosclerosis cardiovascular diseases

statins by 200 Yemeni adults were evaluated. The findings provide valuable insights into the practical application of the ACC-AHA guidelines for ASCVD risk management and statin treatment. Based on our research, 73.5% of participants were taking statins, and the majority (88.4%) were receiving appropriate treatment and benefiting from statins in accordance with the recommended dosage.[3,33] During the course of our investigation. Furthermore, the high rate of adherence to statin therapy (81.0%) is consistent with prior research that underscores the importance of adherence in achieving the most favorable cardiovascular outcomes.[34-37]

The 200 patients were subsequently categorized into four categories based on the 10-year ASCVD risk score and the LDL-C classification of normal to high. Statin prescriptions were significantly more prevalent in patients with exceptionally high-risk ASCVD (88.0%, $p<0.001$), which is consistent with the ACC-AHA guidelines that recommend extensive lipid-lowering therapy for this population. However, a small percentage of patients (11.6%) were discovered to be using statins inappropriately, either due to overprescription in lower-risk categories or under prescription in higher-risk groups.[38-40]

It is noteworthy that the use of statins was not found to be substantially correlated with certain lifestyle factors, including smoking and chewing Qat. As a result of the ACC-AHA guidelines' emphasis on clinical factors such as blood pressure, LDL-C levels, and comorbidities. It is evident from the USPSTF Recommendations that, despite the fact that these factors are recognized as contributing to cardiovascular risk, they may not have a direct impact on the prescribing of statins.[41]

Among the most significant discoveries were the strong correlations between the presence of comorbid conditions and the use of statins. Patients who had multiple comorbidities, including diabetes, dyslipidemia, and hypertension, were significantly more likely to use statins (83.2%, $p < 0.001$). The increasing complexity of managing cardiovascular risk in patients with multiple conditions is emphasized in several studies.[24,42,43]

Despite the high adherence rates demonstrated in our study, it remains imperative to increase awareness and enhance education among healthcare providers and patients in order to bridge the divide between recommendations and clinical practice. In the future, it is recommended that future research focus on the long-term effects of statin medication adherence and the potential consequences of non-adherence in high-risk populations.[44-46]

This study provides critical information regarding the present status of statin use in a group at risk for ASCVD, as well as adherence to the ACC-AHA guidelines. The findings underscore the importance of continuous endeavors to enhance the prescription of statins, particularly in high-risk patients, and to ensure that the recommendations from guidelines are effectively integrated into routine clinical practice.

5. CONCLUSION

The study underscores the importance of aligning clinical practices for the assessment of ASCVD risk and the administration of statins with the ACC-AHA guidelines. A substantial plurality of patients (73.5%) was taking statins, and 88.4% of patients received the recommended treatment, as indicated by the data. The significance of statin medication in achieving favorable cardiovascular outcomes is illustrated by the high adherence rate (81.0%). The project's objective is to enhance patient outcomes and cardiovascular risk management by bridging the divide between actual practices and guidelines.

Ethical Approval

The Scientific Research Ethics Committee of Sana'a University in the Republic of Yemen approved this study (Approval number: IEC/SRC/SU/2023/EX.21/009/23).

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Competing Interests

All the authors declare that there are no conflicts of interest.

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Underlying Data

Derived data supporting the findings of this study are available from the corresponding author on request.

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