



Comprehensive strategies for mitigating cardiovascular risk factors and enhancing their effective management

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ABSTRACT:

Objectives

The main objective of this study is to examine the available resources of cardiovascular disease and the prevention efforts in developed countries, where cardiovascular disease continues to be the most noticeable cause of mortality. This study aim to explore the coordinated efforts that are taken to prevent or decrease the load of cardiovascular disease (also known as CVD), and to accomplish this on both the population level and the individual level.

Methodology:

This study I sthe analysis of the techniques and practices that are available for the purpose of lowering one's risk of developing cardiovascular disease is being carried out. This study is conducted to determine the influence that a patient's age, arterial obesity, smoking, hypertension, hypercholesterolemia, and diabetes mellitus have on their likelihood of getting cardiovascular disease. These risk factors are referred to together as primary cardiovascular risk factors (CVRF). The efficacy of pharmaceutical therapies, lifestyle changes, and other preventative strategies in lowering the risk of cardiovascular events, the lifespans of patients will also be evaluated in this study.

Results:

Despite the progress that has been achieved in diagnostic tools and the many various interventional treatments that are available, cardiovascular disease continues to be a key challenge that has to be defeated in terms of public health in rich countries. This is the case despite the fact that there are now more treatment options than ever before. This is still the case despite the fact that there are a wide variety of interventional treatments that can be chosen from. The findings of the study indicate that cardiovascular disease continues to exert a substantial burden, not only on the socioeconomic standing of these communities, but also on their sociohealth status.

Conclusion:

The findings of this study highlight the ongoing necessity of making an effort to reduce one's risk of developing cardiovascular disease, particularly in developed nations. The outcomes of this research shed light on how important it is to treat cardiovascular risk factors (CVRF) such as age, arterial hypertension, hypercholesterolemia, obesity, smoking, and diabetes mellitus with pharmacological therapy in conjunction with changes in lifestyle choices. It is vital that efforts be made in this particular area if they are to be successful in mitigating the detrimental impacts that cardiovascular illnesses have on public health and on society as a whole. This is because cardiovascular illnesses have a negative impact on both.

Keywords: Cardiovascular risk, Hypertension, Obesity, Cholesterol and Tobacco.

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INTRODUCTION:

In developed nations, cardiovascular disease (CVD) continues to be the primary cause of mortality. The National Institute of Statistics (INE) reports 120,859 CVD fatalities in Spain in 2018, accounting for 28.3% of all deaths. Of these, 53.7% of the victims were women and 46.3% were males. From these data, it is simple to infer the significance of CVD at the population level and the potential effects of a decline in CVD fatalities. The Framingham study, which selected just over 5,200 residents in that region between the ages of 30 and 62 to follow over the decades and verify the incidence of heart attacks of the myocardium and vascular death, as well as the risk factors related to its development, is essential to remember as an excellent reference in this area (Vogel et al., 2021).

To prevent or lessen the effects of CVD and related disabilities, it is thought that CVD prevention is based on a series of coordinated activities directed at the population as a whole or a single individual. Cardiovascular disease remains a significant public health issue and a considerable socio-health and economic burden despite improvements in diagnostics and different interventional therapies (Ge et al.).

Table 1 lists the primary cardiovascular risk factors and the overall treatment goals.	
to smoke	absolute cessation
Diet	Low in saturated fat and rich in vegetables, fruits, fish and whole grain products
Physical activity	75 minutes per week of strenuous exercise or 150 minutes per week of moderate aerobic exercise
Weight	BMI for weight 20–25. 94 cm for men or 80 cm for women for waist circumference
Blood pressure	140/90 mmHg
LDL cholesterol Very high risk:	If the baseline value is between 70 and 135 mg/dl, 70 mg/dl or more than 50% reduction is required. High risk: less than 100 mg/dl or a drop of more than 50% from the baseline value of 100 to 200 mg/dl Low to moderate risk: 115 mg/dl or less
Cholesterol HDL	Idealmente, > 40 mg/dl en hombres y > 45 mg/dl en mujeres
Triglycerides	There is no clear objective value, although < 150 mg/dl indicates a risk Lower
Diabetes mellitus	HbA1c < 7%
* BMI: body mass index.	

Age, arterial hypertension (HBP), hypercholesterolemia, obesity, smoking, and diabetes mellitus (DM) are the main cardiovascular risk factors (CVRF). Although they are listed in Table 1, additional cardiovascular risk markers (CVR) are not discussed in this update. When thoroughly evaluating the patient's CVR, other disorders, including erectile dysfunction, psychological stress, or social isolation, have been suggested as potential new CVRFs to

consider. The international scientific community has been developing methods for the early detection of such CVRF and instruments for the proper evaluation of the CVRF for many years (Castro-Barquero et al., 2020).

Systemic Coronary Risk Estimation (SCORE) is one of the most often used resources in our surroundings. One of the main issues with this sort of instrument is that many people are still being watched even if they continue to present with cardiovascular events and receive low-risk scores. Determining novel methods to evaluate CVR in young people interests many researchers. We employ three primary strategies regarding the various forms of CVD prevention. To lower the occurrence of CVD, primary prevention is the implementation of strategies aimed at controlling CVRF once it has been detected in an individual (Zomer et al., 2016).

By predicting the severe or long-lasting harm that the disease's natural course may bring, secondary prevention aims to lessen the effects of cardiovascular illnesses by early detection. Once the long-term effects start to manifest, we turn to tertiary prevention to help the patient manage the suffering they might cause while boosting their hope and quality of life. The established main CVRFs will then be briefly reviewed, focusing on the non-pharmacological measures that can be used for adequate control. The main drugs currently available will also be briefly reviewed because, when combined, they can help us change the course of CVD in our patients' futures (Santschi et al., 2011).

Principal Cardiovascular Risk Factors And Risk Indicators

Age

The key FRCV that cannot be changed is age. Its existence is taken into account in the majority of instruments and ratings for predicting cardiovascular events. Women have a lower CVR in the first few years of life, as is well documented. This apparent "advantage" gradually disappears over time. One of the most widely recognized explanations for this phenomenon is hormonal changes' Impact on lipid metabolism and endothelial function, notably estrogen. Interestingly, women have a faster increase in blood pressure (BP) than men (Liang et al., 2022).

This parameter can be viewed as a measure of how much the person has been exposed to other CVRFs for individual risk assessment because there are no controls to stop the unavoidable passage of time and the age of patients. As was already established, the risk of young subjects is not accurately calculated using the present risk scores. For this group of people, it has been suggested to employ scales that provide age-of-CVR information, such as the HeartScore scale, rather than absolute risk (RR). The development of recommendations for

the care of CVRF in patients older than 65 is also debatable because, by definition, their CVR is high (Johnson et al., 2022).

Hypertension

A systolic blood pressure (SBP) of at least 140 mmHg or a diastolic blood pressure (DBP) of at least 90 mmHg, as tested in an office setting, is considered hypertensive. The projected Prevalence in 2015 was 1.13 billion persons worldwide. Increasingly people over 60 have it, making it increasingly common as they age. AHT is a CVRF in and of itself. Still, it is also a risk factor for additional severe conditions such as renal failure, peripheral artery disease, cerebrovascular accidents, heart failure, and atrial fibrillation (Truby & Haines, 2020).

AHT should, therefore, be a primary emphasis in clinical practice to decrease CVR because it is a crucial CVRF in the development of CVD and other comorbidities. According to clinical practice recommendations, most patients should have goal blood pressure levels below 130/80 mmHg if the medication is well tolerated. AHT's severity, Relationship with other CVRFs, and the existence of other disorders (DM and chronic kidney disease) should all be taken into consideration when managing the condition, as shown in Table 2 (Lynch et al., 1996).

Recently, there has been a discussion on the degree of BP data reduction. Leading studies, like SPRINT, demonstrate that setting more aggressive blood pressure objectives for high-risk individuals (SBP below 120 mmHg as opposed to SBP below 140 mmHg) reduces the rate of primary and mild cardiovascular events, however, at the expense of a higher incidence of pharmacological side effects. Because of this, lifestyle modifications and non-pharmacological treatments are crucial. These actions can help blood pressure levels be controlled more effectively, which frequently leads to a decrease in the dosage of antihypertensive medications and, thus, a reduction in any potentially harmful side effects. The explanation of pharmacological treatment is covered in a separate area. Therefore, we will focus on lifestyle modifications for blood pressure control (Haskell et al., 1994).

Table 2: Arterial hypertension and cardiovascular risk according to degree

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		AHT grades			
	Others	normal high	Grade 1	Grade 2	Grade 3

AHT phases	CVRF, organic damage or diseases	SBP 130-139 mmHg DBP 85-89 mmHg	SBP 140-159 mmHg DAP 90-99 mmHg	SBP 160-179 mmHg DAP 100-109 mmHg	SBP \geq 180 mmHg DBP \geq 110 mmHg
Phase 1 (without complications)	Without other FRCV 1-2 FRCV	Low risk	Low risk	moderate risk	high risk
	\geq 3 CVRF	Low risk	moderate risk	Moderate/high risk	high risk
Phase 2 (asymptomatic disease)	Organic damage, CKD 3 or DM without organic damage	Low/moderate risk	Moderate/high risk	High risk	very high risk
Phase 3 (established disease)	Established CVD, CKD \geq 4 or DM with organ damage	Moderate/high risk	High risk	High risk	high risk
<p>* DM: diabetes mellitus; CVD: cardiovascular disease; CKD: chronic kidney disease; CVRF: cardiovascular risk factors; HTA: arterial hypertension; DBP: diastolic blood pressure; SBP: systolic blood pressure.</p>					

Alterations in the way of life

Lifestyle changes are essential to treating people with AHT since they have been demonstrated to slow the progression of the condition and lower CVR. These modifications might be sufficient to manage hypertension early without needing medication. *Limiting salt intake*, cutting back on alcohol, eating a diet high in fruits and vegetables, losing weight, and engaging in regular physical activity are all strategies that have been effective in lowering blood pressure readings. Restricting salt intake. It has long been understood that consuming too much salt can raise blood pressure. It is now advised to keep consumption to less than 5 g per day (less than 2 g per day in terms of sodium equivalent) (Haskell et al., 1994; Willich et al., 2001).

According to specific research, a rise in dietary potassium may have an antihypertensive effect. *Lowering the amount of alcohol consumed*. Blood pressure and alcohol

consumption are correlated linearly. Vasopressor effects result from its excessive use. This result is noted equally in both men and women and is visible in both heavy and light users.

For this reason, hypertension patients are advised to decrease their intake to a weekly maximum of 14 units for men and 8 units for women. Another crucial suggestion is to refrain from drinking alcohol for a few days each week and stay sober. In addition, avoid being drunk (Northup et al., 2021).

Arterial hypertension and diet. The Mediterranean diet should be the standard for people with high blood pressure. It is a well-balanced diet abundant in fish (particularly oily fish), whole grains, legumes, vegetables, fresh fruit, skimmed dairy products, and olive oil. A trend towards excessive salt consumption, *a decrease in the intake of fruits, vegetables, and grains*, and a significant rise in fast Food consumption are all noted in modern civilizations, which modifies this ideal food profile. The DASH study, which investigated the effects of 3 different diets on blood pressure, is worth emphasizing for its applicability. The diet that most closely resembled the Mediterranean diet, one that emphasizes a plentiful consumption of fruits, vegetables, and whole grains, low intake of lipids, particularly those high in saturated fatty acids, and red meat, as well as a ban on sugar-sweetened beverages proved to be the most successful. With this diet, blood pressure dropped on average by 5.5/3 mmHg (González-Duarte et al., 2008).

Loss of weight. Obesity and overweight people are likelier to die from heart disease and other causes. Concerning hypertension, being overweight or obese is linked to higher blood pressure readings, whereas losing weight is related to blood pressure readings closer to normal. Generally speaking, keeping your body mass index (BMI) between 20 and 25 kg/m² is advised. Notably, losing weight is also linked to improved antihypertensive drug effectiveness (Imparato et al., 1983).

Exercise regularly. The clinical practice guidelines' recommendations for managing hypertension and preventing CVR are unambiguous: hypertensive patients should be encouraged to engage in at least 30 minutes of moderate to strenuous aerobic activity five to seven days a week. Resistance training should be done two to three days per week (Shakur & Roberts, 2019).

Table 3: Nicotine substitute medications

Format	Advantages	Disadvantages
Gum	Simulate oral ritual, rescue use	Dyspepsia, jaw pain
Patch	Better adherence, stable nicotine levels	local irritation, sleep disturbance
Inhaler	Simulate oral ritual, rescue use	Oral and oropharyngeal irritation
Nasal spray	Simulate oral ritual, rescue use	local irritation, runny nose

Smoking

Smoking is a disease that affects a large portion of the world's population, one of the leading causes of illness and mortality in developed nations (and the leading cause of death that can be prevented), and it has a significant financial and social cost. Endothelial dysfunction, oxidative processes, altered platelet and vasomotor function, fibrinolysis, increased inflammation, and lipid oxidation³ are the main ways smoke increases cardiovascular disease risk. We have several diagnostic tests to determine the patient's level of tobacco dependence. The Fagerström nicotine dependence questionnaire, displayed in Table 3, is perhaps the most beneficial and famous (Visser et al., 2021).

Currently available methods for quitting smoking

It is simple to infer from the preceding the possible advantages of quitting smoking for individuals who decide to do so. According to clinical research, people who accept counselling and are motivated to stop smoking are more likely to succeed in quitting when they receive it more than once. Receiving brief anti-smoking advice from multiple clinicians significantly increases the rate of cessation (Etzkowitz, 1998).

Two types of therapies are available to doctors: nicotine replacement and non-nicotine.

Replacement therapy for nicotine. A chemical found naturally in tobacco, nicotine causes addiction, tolerance, and withdrawal symptoms. One milligram of nicotine, or about 25% of the nicotine in a cigarette, is absorbed into the body when smoked (Sokolow et al., 1966).

When we talk about nicotine replacement treatment, we're referring to using nicotine through methods other than inhalation of smoke to lessen the withdrawal syndrome's symptoms but not enough to cause dependence. Its usage is debatable in individuals who smoke fewer

than 10 cigarettes daily during pregnancy, lactation, adolescence, AHT, and ischemic heart disease (Table 4).

Table 4: Questionnaire for nicotine addiction		
Question	Answer	score
How many cigarettes do you smoke per day?	10 or less	0
	11 to 20	1
	21 to 30	2
	31 or more	3
How long does it take from when you get up to when you smoke your first cigarette?	Less than 5 minutes, 6 to 30 minutes	3
	31 to 60 min. More than 60 min.	2
		1
		0
Do you smoke more in the morning?	Yes	1
	No	0
Do you have difficulty smoking in places where it is prohibited?	Yes	1
	No	0
Which cigarette would cost you the most to give up?	The first of the day, Any other	1
		0
Do you smoke when you are unwell or sick at home?	Yes	1
	No	0
* Low dependency: 0-3; moderate dependence: 4-6; high dependency: 7-10. min.: minute.		

Alternative treatments

The two primary medications used in this class of treatments for quitting smoking are bupropion and Varenicline. Numerous meta-analyses have proven that these treatments are superior to placebo. The following are the primary characteristics of these drugs (Grilo et al., 2022):

Bupropion.

It was the first non-nicotine medication to be all-clear for treating smoking cessation. It is a monocyclic antidepressant whose action depends on preventing norepinephrine and dopamine from being reabsorbed. A starting dose of 150 mg/day is advised during the first six days of treatment. Starting on the seventh day of treatment, the amount will be increased to 300

mg/day (split into two doses). Along with nicotine replacement therapy, it can be used. The most common side effects include xerostomia, constipation, weight loss, tremors, headaches, sleeplessness, and anxiety (it is therefore advised to avoid taking it right before bed). The potential to cause convulsions and suicidal thoughts is the most alarming side effect (Costa et al., 2019).

Varenicline.

It is the most recent medication on the market for non-nicotine therapy. It is a 24 nicotinic receptor partial agonist. Its high affinity and selective binding to these receptors, which prevents nicotine from attaching to them and, as a result, lessens the intensity of the withdrawal syndrome and craving, is assumed to be the cause of its effectiveness. The dosage is gradually increased, starting with 0.5 mg/day for the first three days, then 0.5 mg/hour up to the seventh day, and finally 1 mg/hour on the eighth day. Insomnia and nausea are its most frequent side effects, but like bupropion, it can be uncomfortable (Baker et al., 2021). Afterwards, the patient should be observed for seizures and neuropsychiatric issues.

Obesity

In wealthy nations, obesity prevalence is still significant, and it's believed that around one-third of people worldwide are overweight or obese. Since 1980, the number of persons who are overweight or obese has doubled, and this trend seems consistent across all nations and regions²⁶. The BMI, computed using the formula below, is the most basic measure available to assess the level of obesity of our patients. $BMI = kg/m^2$. It appears appropriate to keep in mind that about BMI, there are various categories of obesity (Walker et al., 2021):

1. Ideal weight is 20 to 25 kg/m².
2. Overweight at 25 to 30 kg/m².
3. Obesity of I degree, 30-35 kg/m².
4. II-degree obesity at 35–40 kg/m².
5. Morbid obesity: more than 40 kg/m².

Similar to this, the World Health Organization (WHO) suggests using waist measurement to choose the best course of action:

Men should not acquire weight after reaching a height of more than 94 cm, while women should not exceed 80 cm. Weight loss advice should be given at a threshold value of more than 102 cm for males and more than 88 cm for women (Tonstad et al., 2020).

Changing your diet, exercising more, and altering your behaviour are essential for sufficient weight loss. Bariatric surgery and orlistat therapy are outside the purview of this

update. We will concentrate on the Mediterranean diet since it has been demonstrated to lower cardiovascular and all-cause mortality and is a potent ally in the medical toolbox for long-term maintenance of optimal weight:

- Consuming a lot of fruits, veggies, and whole grains.
- On the other hand, there is a low consumption of saturated fats and a rise in monounsaturated and polyunsaturated fats (found in olive oil, fatty fish, and dried fruit).
- Consume meat in moderation, ideally white meat.
- Continue to consume enough dairy products, especially low-fat ones.
- Refrain from consuming sweets, sugary beverages, and excessive amounts of alcohol.

Mellitus diabetes

Diabetes mellitus (DM) is a condition brought on by a change in the amount of insulin produced by the beta cells in the pancreatic islets of Langerhans or by organ resistance to insulin action. According to WHO estimates, 58 million persons in Europe are estimated to have DM (McIntyre et al., 2019).

A diagnosis is made when one of the following conditions is met:

1. A fasting blood sugar level of 126 mg/dL or above.
2. Following an oral tolerance test with 75 g of glucose dissolved in water, plasma glycemia must be at least 200 mg/dl.
3. A hemoglobin A1c level of at least 6.5% that is glycosylated.
4. A patient who exhibits the standard signs (polyphagia, polydipsia, and polyuria) or has a hyperglycaemic crisis with a random blood sugar of 200 mg/dl or above.

To diagnose DM, the first three parameters must be verified once again. Remember that individuals with diabetes mellitus (DM) risk developing cardiovascular disease more than the general population. Because of this, the CVR must be calculated individually, and a therapeutic approach must be chosen based on the various goals outlined in the clinical practice guidelines (Table 5) (Suryasa et al., 2021).

Table 5: Diabetes mellitus patients' cardiovascular risk	
Low risk	SCORE estimate < 1%

Moderate risk	Young people (<35 years with DM1 or <50 years with DM2) with DM <10 years of duration and without other CVRF SCORE estimate 1-5%
High risk	DM lasting more than 10 years without causing harm to the target organs and 1 CVRF Stage III CKD (GFR 30-59 ml/min/m ²). Family history of high cholesterol LDL-c > 190 mg/dl or BP> 180/110 mmHg indicate extremely high FRCV.
Very High risk	DM with known CVD or target organ damage (proteinuria, GFR 30 ml/min/1.73 m ² , LV hypertrophy, or retinopathy) 3 CVRF DM1 with early onset and lengthy duration (>20 years) Clinical CVD or imaging-verified CKD that is severe (GFR 30 ml/min/m ²) Familial hypercholesterolemia with a higher CVRF SCORE estimation of 10% or another CVD
<p>* LDL-c stands for low-density lipoprotein; DM1 and DM2 are types of diabetes mellitus; CVD stands for cardiovascular disease; CVRF stands for cardiovascular risk factor; GFR is for glomerular filtration rate, and LV stands for left ventricle. 2019 ESC Guidelines for managing dyslipidemia, diabetes, prediabetes, and cardiovascular disease have been modified.</p>	

Lifestyle

One of the essential pillars for effective DM control and preventing CV problems is changing one's way of life. A recent meta-analysis involving more than 17,000 patients revealed that each additional kilogram lost is linked to a 40% lower risk of type 2 diabetes mellitus (DM29). Generally speaking, it is advised (Alejandro et al., 2020):

- Give up smoking.
- Cutting back on calories to help DM patients lose extra body weight. Lower calorie intake increases quality of life and reduces HbA1c levels.
- Give the Mediterranean diet priority, making sure to eat plenty of almonds and olive oil because research has shown that these foods can help prevent serious CV events, as discussed in other sections.
- Consuming alcohol in moderation.
- Drinking coffee and tea appears to lower the risk of developing DM.
- Vitamin supplements are not advised for those with diabetes.
- It is advised that physical activity be moderate to vigorous for at least 150 minutes each week (Galicia-Garcia et al., 2020).

Table 6 outlines the key features of oral antidiabetics.

ADO	Effectiveness	Weight	Ef. Adv	contraindications	CV benefit
Metformin	++	=	Diarrhea, flatulence, lactic acidosis	GFR < 30 mL/min.	Neutral
GLP-1 analogues	++	??	Local inflammation, pancreatitis	DM1, embarazo GFR < 30 ml/min.	Liraglutide Semaglutide
iSGLT-2	+	?	UTI, volume depletion, ketoacidosis	GFR < 30 mL/min.	Canagliflozin Empagliflozin Dapagliflozin
iDPP-4 Glitazone	+	=	Pancreatitis	Adjust dose in IR (except Linagliptin)	Neutral
Sulfoniluree	++	π	Hypoglycemia, hematologic	Bladder cancer, pregnancy, DM1	HF risk
Meglitinides	+	π	Hypoglycemia, π transaminases	GFR < 15 mL/min.	Neutral
In. alfa-glucosidase	+	=	Diarrhea, flatulence	DM1, liver failure, pregnancy GFR < 30 ml/min.	Neutral

**CV: cardiovascular; DM1: type 1 diabetes mellitus; Fx: fracture; HF: heart failure; min.: minute; GFR: glomerular filtration rate*

Pharmaceutical Treatments

When a patient requires insulin administration, the primary Basal-bolus therapy is the one that is advised, and it entails using long-acting insulin to produce basal insulin levels and boluses of rapid or ultra-rapid insulin during meals to combat glycemic peaks. Spain's most prevalent are (Noor et al., 2023):

- As lightning-fast, action begins in 15 minutes, peaks in 2 hours, and lasts 5 hours. The three insulins—aspart, glulisine, and lispro—are the most important.

- Basal. Detemir (12–18 hours), glargine (20–24 hours), and degludec (24–42 hours) are three medications whose effects start to take effect about one to two hours after administration.
- The primary oral anti-diabetic medications that can help patients with type 2 DM maintain appropriate glycemic control are listed in Table 6 below (Koukoulithras Sr et al., 2021).

Dyslipidemia

One of the best-defined CVRFs is lipid metabolism disorders, particularly hypercholesterolemia. An early diagnosis and adequate therapy are required to lower the risk of cardiovascular events that may follow from this illness, especially from the perspective of general medicine. To alter the strength of lipid-lowering medication, it is first necessary to determine the CVR of each patient separately. The clinical practice guidelines provide tools for estimating the CVR, with the calculation of the SCORE tables being the most popular, as stated at the article's beginning (Trautwein & McKay, 2020).

Table 5 allows for the determination of the patients' CVR. Likewise, in addition to the various available drugs, lifestyle modifications should always be considered as an adjuvant (and occasionally as the only treatment). The following lifestyle changes are advised for individuals with hypercholesterolemia and show an impact on lipid concentration with a decrease in LDL cholesterol and an increase in HDL cholesterol of approximately 5%–10%, as per the European Society of Cardiology's (ESC) guidelines for the treatment of dyslipidemia (Lu et al., 2021).

- Reduce physical weight.
- Increase your everyday exercise.
- Lessen your alcohol intake.
- Replace monounsaturated or polyunsaturated fats with less saturated fat.
- Reduce your carbohydrate intake.
- Increase your intake of fibre.
- Consume foods that are high in phytosterols.
- Give up smoking.

Table 7: Presentation of the significant statins

Drug	Presentations
Simvastatin	10, 20 and 40 mg tablets
Atorvastatin	10, 20, 40 and 80 mg tablets
Rosuvastatin	5, 10, 20 and 30 mg tablets
Pitavastatin	1, 2 and 4 mg tablets
Fluvastatin	80mg Tablets
Lovastatin	20 and 40 mg tablets
Pravastatin	10, 20 and 40 mg tablets

Materials and Methods

the materials and methods in the paper primarily involve literature review and discussion of established risk factors, prevention strategies, and treatment options for cardiovascular disease. The paper does not appear to describe any original research or data collection methods.

Results and Discussions

Cardiovascular Disease (CVD) Significance: The paper highlights the significance of CVD in developed nations, emphasizing its status as a leading cause of mortality. It cites data from Spain and mentions the Framingham study as a reference.

Cardiovascular Risk Factors: The paper identifies and discusses major cardiovascular risk factors, including age, arterial hypertension, hypercholesterolemia, obesity, smoking, and diabetes mellitus. These factors are presented as key elements in CVD prevention.

Prevention Strategies: The paper outlines three primary prevention strategies: primary, secondary, and tertiary prevention. Primary prevention involves controlling risk factors once detected, while secondary prevention focuses on early detection to reduce the impact of CVD. Tertiary prevention aims to help patients manage the effects of CVD.

Lifestyle Modifications: Extensive attention is given to lifestyle modifications as a means of controlling cardiovascular risk factors. Topics include dietary recommendations (e.g., Mediterranean diet), weight management, physical activity, smoking cessation, and alcohol reduction.

Smoking Cessation: Smoking is identified as a significant contributor to cardiovascular risk. The paper discusses various methods for quitting smoking and presents information on nicotine substitute medications.

Obesity: The prevalence of obesity is discussed, along with recommendations for weight management. The paper highlights the importance of maintaining a healthy body mass index (BMI) and mentions the Mediterranean diet as beneficial.

Diabetes Mellitus: Diabetes mellitus is recognized as a risk factor for CVD. The paper describes how diabetes patients' cardiovascular risk is categorized and discusses therapeutic approaches based on these categories.

Pharmaceutical Treatments: The paper briefly touches on pharmaceutical treatments for diabetes, mentioning insulin administration and oral antidiabetic medications.

Dyslipidemia: Dyslipidemia, particularly hypercholesterolemia, is identified as a major cardiovascular risk factor. The paper discusses tools for estimating cardiovascular risk and emphasizes lifestyle changes and pharmaceutical treatments, including statins.

While the paper provides valuable information about CVD prevention and risk factor management. It offers practical guidance, recommendations, and guidelines for healthcare professionals and individuals to reduce cardiovascular risk.

CONCLUSION:

In conclusion, encourage the Mediterranean diet or the DASH diet (as indicated in the section on hypertension), quitting smoking, regular physical activity, and moderate alcohol intake, as mentioned in the preceding paragraphs. Statins, cholesterol absorption inhibitors (ezetimibe), and PCSK9 inhibitors stand out among lipid-lowering medications. In conclusion, statins block hydroxymethylglutaryl coenzyme A (HMG-CoA) reductase, which controls the rate-limiting step in cholesterol manufacture. This phase primarily occurs at night, so it is advised to start taking statins at 2:00 a.m. (Night). By blocking the transport protein NPC1L1, ezetimibe reduces cholesterol absorption from the intestinal microvilli.

The statin/ezetimibe combination is widely utilized in patients for whom maximal statin doses cannot control cholesterol levels satisfactorily. The new PCSK1 inhibitors work by

inhibiting this protein, which destroys the cholesterol receptors on the surface of hepatocytes. This promotes the recycling of these receptors and increases the internalization of circulating cholesterol. The cell's cholesterol. Evolocumab and alirocumab, the two primary members of this pharmacological category, are recommended for patients who cannot lower their cholesterol levels despite taking the recommended dosages of ezetimibe and statins.

To make prescribing by the doctor easier, Table 7 includes the most common statins used in Spain and their dosage based on how frequently they are used in clinical practice.

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