To evaluate the impact of aspirin in prevention of coronary artery disease in superspeciality hospital Jalandhar Punjab, India

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Introduction: Coronary artery disease (CAD), a prevalent cardiovascular ailment, arises from the gradual accumulation of fatty deposits, cholesterol, and other substances within the coronary arteries - the blood vessels responsible for supplying oxygen and nutrients to the heart muscle. Aspirin plays a pivotal role in the management of Coronary Artery Disease (CAD) due to its antiplatelet properties. CAD often involves the formation of blood clots within narrowed coronary arteries, potentially leading to heart attacks. Aspirin, a blood-thinning medication, helps prevent clot formation by inhibiting the aggregation of platelets, which are blood cells involved in clotting. **Objective:** The objective of this study was to the impact of aspirin in prevention of coronary artery disease in superspeciality hospital Jalandhar Punjab, India. Methodology: The study was conducted in cardiac care unit at Nasa and Hub Superspeciality hospital Jalandhar Punjab and exclusively on patients who presented with any kind of cardiac disorder symptoms. This study was approved by the Ethics committee of Nasa And Hub Superspeciality Hospital. All the subjects have signed the informed consent form. In this study, 200 patients were recruited in NASA AND HUB SUPERSPECIALITY HOSPITAL Jalandhar Punjab from 8th june 2022 to 8th September 2022. **Results and Discussion:** . In this study population, there were significant differences between male and female concerning cardiovascular risk factors, so cigarette smoking is very prevalent in young group and limited for males. We observed that hypertension and diabetes are present at high level in women than men, and the percentage of hypertension and diabetes increase in both gender with age. In the present study, we examined a representative sample of visits to physicians in the Nasa And Hub Superspeciality Hospital by patients with coronary artery disease, with a focus on visits to cardiologists and primary care physicians by patients in whom aspirin was not contraindicated. **Conclusion:** Aspirin continues to be the mainstay of antiplatelet therapy in individuals with coronary artery disease (CAD) in this observational study. Patients at a high risk of developing CVD in the future may be advised to take aspirin, but the potential for adverse effects must be recognised in addition to the advantages. As a result of our study, it is imperative to reinforce the need for proper coronary artery disease (CAD) management in order to prevent further coronary artery complications.

Keywords: Coronary artery disease, aspirin, smoking, hypertension

Introduction

Coronary artery disease (CAD), a prevalent cardiovascular ailment, arises from the gradual accumulation of fatty deposits, cholesterol, and other substances within the coronary arteries - the blood vessels responsible for supplying oxygen and nutrients to the heart muscle [1-10]. This process, termed atherosclerosis, causes the arteries to narrow and stiffen, limiting blood flow and oxygen delivery to the heart. The resulting reduced blood supply can lead to various cardiac issues, including chest pain (angina) and, in severe cases, heart attacks [10-20]. A multitude of risk factors contribute to CAD's development, including high blood pressure, elevated cholesterol levels, smoking, diabetes, obesity, physical inactivity, and genetic predisposition. These factors can lead to chronic inflammation and damage to the arterial walls, facilitating the accumulation of arterial plaques [20-30]. Diagnosis often involves a combination of a patient's medical history, physical examination, and diagnostic tests like electrocardiograms (ECGs), stress tests, and coronary angiography. The latter allows clinicians to visualize blockages in the coronary arteries. CAD management involves a multifaceted approach. Lifestyle modifications form a cornerstone, including adopting a heart-healthy diet rich in fruits, vegetables, whole grains, and lean proteins, maintaining regular physical activity, managing stress, and discontinuing smoking [30-40]. Medications such as aspirin, statins to lower cholesterol, beta-blockers to reduce heart strain, and nitroglycerin to alleviate angina symptoms may be prescribed. For severe cases, medical procedures like angioplasty and stent placement can help restore blood flow by widening the narrowed arteries and supporting their structural integrity. In more complex situations, coronary artery bypass surgery may be recommended to reroute blood flow around severely blocked arteries [40-50]. Preventing CAD involves a proactive approach to managing risk factors and embracing a heart-healthy lifestyle. Timely intervention, coupled with routine medical check-ups, allows for early detection and effective management. CAD underscores the significance of cardiovascular health and underscores the value of informed decisions and medical guidance in ensuring a healthier heart and enhanced quality of life. Aspirin plays a pivotal role in the management of Coronary Artery Disease (CAD) due to its antiplatelet properties. CAD often involves the formation of blood clots within narrowed coronary arteries, potentially leading to heart attacks. Aspirin, a blood-thinning medication, helps prevent clot formation by inhibiting the aggregation of platelets, which are blood cells involved in clotting. By reducing platelet aggregation, aspirin minimizes the risk of clots forming on the surface of arterial plaques, thereby decreasing the likelihood of a blocked artery causing a heart attack [50-60]. This preventive effect has been well-documented and is a cornerstone of CAD treatment. However, the use of aspirin in CAD should be carefully considered under medical supervision, as its benefits must be weighed against potential risks, such as bleeding complications. Aspirin therapy might be recommended for individuals with established CAD, a history of heart attack, or other high-risk factors [60-70]. It's crucial for patients to follow their healthcare provider's guidance and dosage recommendations. Aspirin's ability to inhibit platelet aggregation is instrumental in reducing the risk of clot formation and subsequent heart attacks in individuals with CAD. Its role as a preventive measure underscores the importance of personalized medical advice when considering aspirin therapy for CAD management [70-121].

Objective

The objective of this study was to evaluate the impact of aspirin in prevention of coronary artery disease in superspeciality hospital Jalandhar Punjab, India.

Materials and Methods

The study was conducted in cardiac care unit at Nasa and Hub Superspeciality hospital Jalandhar Punjab and exclusively on patients who presented with any kind of cardiac disorder symptoms. This study was approved by the Ethics committee of Nasa And Hub Superspeciality Hospital. All the subjects have signed the informed consent form. In this study, 200 patients were recruited in NASA AND HUB SUPERSPECIALITY HOSPITAL Jalandhar Punjab through 8th june 2022 to 8th September 2022. All the patients were diagnosed as CAD according to the latest clinical guideline and have undergone percutaneous coronary interventions. Patients were subsequently treated with

antiplatelet therapy (Aspirin 75 mg once daily) for 7 days to stabilize the effect of antiplatelet aggregation. This principal outcome measure of the study was the report of the use of aspirin as a new or continuing medication at visits by patients with coronary artery disease. The unit of analysis is the patient visit. Patients receiving aspirin were identified on the basis of the coding of generic or proprietary names for aspirin among as many as 8 possible medication codes associated with each visit. Non-narcotic combination analgesics containing aspirin also were considered aspirin therapy. The prescriptions were analysed to acquire the vital data about both the patient and the medication. The patient portion included all pertinent details about the patient, including name, age, gender, socioeconomic status, past medical history and so forth. The relevant details about the drug included its name (both the generic and brand names), its class, any medication combinations that were administered, the dosage form, the dosage schedule, the route of drug administration, and the duration of time the drug was used. The finalized data was documented, and analysis of it was carried out with the aid of suitable statistical method.

Results

In this observational study the total study population (n=200), among them 140(70%) male and 60(30%) female participants. The baseline characteristics of the participants in the study included, 96 (48%) diabetics, 40 (20%) current smokers, and 96 (48%) participants reporting alcohol consumption. The number of participants reporting a history of coronary artery disease, hypertension, or heart failure was 144 (72%), 64 (32%) and 40 (20%) respectively. At baseline a total of 132 (66%) participants were treated with aspirin.

Characteristics	No. of participants with characteristic (%)
Diabetes mellitus	96 (48%)
History of CAD	144 (72%)
Hypertension	64 (32%)
Heart failure	40 (20%)
Smoking	40 (20%)
Alcohol intake	96 (48%)
Use of aspirin	132 (66%)

Table 1. Base line characteristics of CAD patients

Base line characteristics of CAD patients

- 1. Base line characteristics
- 2. Gender-wise distribution of CAD patients

On the basis of gender, males tend to have a higher percentage of coronary artery disease than females. In this study the total number of male patients was 140 accounting for 70% of the study population, whereas female patient were 60 accounting for 30% of total study population. Males are much more prone to coronary artery disease than females with other comorbidities like diabetes mellitus, hypertension etc.



Figure 1. Gender-wise distribution of patients

3, Age-distribution of CAD patients

According to the data that is collected from the hospital, the most number of cases of coronary artery disease were with the age groups of more than 40 years and so on (in case of males), While in female patients, the age group is more than 45 years. In this study 200 patients were studied, out of them, 8 (4%) patients were from age group of 40-49 years, 18 (9%) patients were from age group of 50-59 years, 40 (20%) patients were from age group of 60-69 years, 66 (33%) patients were from age group of 70-79 years, 68 (34%) patients were from age group of \geq 80 years. In this study it was observed that in all groups of the age range, the male patients were usually greater than females. Among all the age groups, the distribution of CAD patients was highest in the age group of \geq 80 years, and lowest in age group of 40-49 years.

S.No.	Age group (years)		Number of Patients (%)			Total No.
			Male		Female	Patients (%) (n=200)
1	40-49	5 (2.5)		3 (1.5)		8 (4)
2	50-59	13 (6.5)		5 (2.5)		18 (9)
3	60-69	28 (14)		12 (6)		40 (20)
4	70-79	46 (23)		20 (10)		66 (33)
5	≥ 80	48 (24)		20 (10)		68 (34)

Table 2. Distribution of patients according to age

1. Symptomatic categorization

In this study the commonest complaints were chest pain, dyspnea, shortness of breath, vertigo, nausea and vomiting. It was observed that (72%) patients were complaining about chest pain, (24%) patients about shortness of breath, the patients complaining about dyspnea were (30%), (12%) patients were complaining about vertigo and (18%) patients were complaining about nausea and vomiting.

Distribution of symptoms among CAD patients

Despite major advances, in the diagnosis and treatment of heart disease, coronary artery disease remains the leading cause of morbidity and mortality in both men and women in worldwide. In this study population, there were significant differences between male and female concerning cardiovascular risk factors, so cigarette smoking is very prevalent in young group and limited for males. We observed that hypertension and diabetes are present at high level in women than men, and the percentage of hypertension and diabetes increase in both gender with age. In the present study, we examined a representative sample of visits to physicians in the Nasa And Hub Superspeciality Hospital by patients with coronary artery disease, with a focus on visits to cardiologists and primary care physicians by patients in whom aspirin was not contraindicated. This finding suggests that a considerable proportion of patients with coronary artery disease remain at an increased risk for adverse outcomes. The feasibility, safety, and efficacy of aspirin in a high proportion of patients with coronary artery disease have been demonstrated in many settings. Most of the patients show the signs of chest pain, dyspnea and shortness of breath, vertigo; nausea and vomiting were among the main complaints. In this study we assessed the main risk factors associated with coronary artery disease were smoking, stress, obesity, diabetes and Hyperlipidemia. It was observed that most frequently utilized drug was Aspirin.

Conclusion

Aspirin continues to be the mainstay of antiplatelet therapy in individuals with coronary artery disease (CAD) in this observational study. Patients at a high risk of developing CVD in the future may be advised to take aspirin, but the potential for adverse effects must be recognised in addition to the advantages. As a result of our study, it is imperative to reinforce the need for proper coronary artery disease (CAD) management in order to prevent further coronary artery complications. Dietary modifications and improved risk factor management all significantly affect CAD recovery, enhancing clinical manifestations and quality of life. In addition to early management of diabetes and hypertension, quitting smoking and alcohol consumption are key CAD preventive strategies. According to this study's findings, men are substantially more likely than women to develop coronary artery disease (CAD).

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