



PROPHYLAXIS STRATEGIES IN PREVENTING COMPLICATIONS POST CABG SURGERY AND ENHANCING PATIENT RECOVERY

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ABSTRACT

Background: Coronary artery bypass graft (CABG) surgery requires effective prophylaxis strategies and preoperative medication management to prevent postoperative complications and improve patient recovery. This study aimed to evaluate prophylaxis strategies and medication utilization patterns in patients undergoing CABG surgery. **Materials and Methods:** A prospective observational study was conducted for six months at CARE Hospital among 100 CABG patients. Data regarding demographics, diagnosis, comorbidities, and preoperative and postoperative medication utilization patterns were collected and analyzed using descriptive statistics. **Results:** Most patients belonged to the 50–60 years age group (34%), and 82% were males. Chest pain and shortness of breath were observed in 80% of patients. CAD was the most common diagnosis (30%). Preoperatively, Inj. Supacef and Inj. Heparin were prescribed in 100% of patients, while Atorva, Dolo, Zincovit, Met XL, Dytor Plus, and Cremaffin Plus were used in 90% of patients. Postoperatively, Clopitab, Atorva, Inj. PAN, and Cremaffin Plus were prescribed in 90% of patients. Antiplatelets, statins, anticoagulants, antibiotics, and supportive medications played a major role in complication prevention and recovery enhancement. **Conclusion:** Appropriate prophylaxis strategies and evidence-based pharmacotherapy significantly contributed to preventing postoperative complications and improving recovery among CABG patients.

KEYWORDS: Coronary artery bypass graft surgery, CABG, prophylaxis strategies, postoperative complications, preoperative pharmacotherapy, medication utilization, patient recovery, antiplatelet therapy, anticoagulants, coronary artery disease.

INTRODUCTION

Coronary artery disease (CAD) stands as one of the most common medical conditions that leads to death throughout the world. The condition develops when plaque buildup causes blood vessels that deliver oxygen and nutrients to the heart to become narrow or completely blocked. The body experiences reduced blood circulation which results in chest discomfort, breathing difficulties, heart attacks, and other dangerous heart-related problems.^[1,2] The combination of smoking, poor dietary choices, excessive body weight, mental stress, diabetes mellitus, high blood pressure, and insufficient exercise creates a significant risk factor for developing CAD. The rising number of cardiovascular disease cases throughout the world requires healthcare systems to develop methods for early detection and

provide suitable treatments while implementing measures to prevent health issues which will enhance patient survival chances and their overall wellness.^[3]

The surgical procedure known as coronary artery bypass grafting (CABG) is frequently conducted to treat patients who suffer from severe coronary artery disease which affects multiple blood vessels or their left main coronary artery.^[4] The CABG surgical procedure uses an arterial graft which surgeons extract from a patient's body to create a new path that will enable blood to flow around the obstructed coronary artery into the heart muscle. The procedure reduces chest pain symptoms while it enhances heart function and decreases the possibility of future heart-related medical issues. The CABG surgery procedure provides superior long-term results to most

patients who have advanced coronary artery disease when compared to treating the condition through medical methods only.^[5,6]

Patients who undergo CABG surgery continue to experience postoperative health problems despite surgical technique improvements and postoperative treatment advancements. The body may experience various complications which include infections and bleeding and arrhythmias and thromboembolic events and respiratory problems and graft occlusion and delayed wound healing.^[7,8] The presence of associated comorbid conditions such as diabetes mellitus, hypertension, hypothyroidism, obesity, and renal disorders further increases the risk of complications and prolonged hospital stay. The development of effective prophylaxis strategies for both preoperative and postoperative periods becomes essential to prevent surgical complications while enabling patients to recover more quickly. Postoperative outcomes in CABG patients improve through the combination of early monitoring and proper medication and nutritional assistance and patient educational sessions.^[9,10]

The most important preventive measure for patients who undergo CABG surgery is their treatment with preoperative medication management. Doctors prescribe multiple medications to patients which include anticoagulants and antiplatelet agents and statins and antibiotics and beta blockers and analgesics and proton pump inhibitors and supportive supplements before and after their surgical procedure.^[11,12] The primary function of the medications is to stop the occurrence of complications which include thrombosis and infection and gastric irritation and pain and cardiovascular instability. Better graft patency results from correct medication usage which also reduces postoperative complications while enabling faster patient recovery. The safe and effective use of these medications throughout the preoperative period needs both rational prescribing patterns and continuous clinical monitoring.^[13]

The present study was conducted to evaluate prophylaxis strategies in preventing complications following CABG surgery and enhancing patient recovery. The study examined demographic information together with disease states and risk elements and medication use patterns for patients who underwent CABG surgery. The role of prophylactic medications together with supportive therapies should be understood because they will improve patient care and result in better treatment results. The study results will deliver important data which demonstrates how to manage medications through evidence-based methods while showing the value of complete postoperative treatment to decrease complications and enhance life quality for CABG patients.^[14,15]

MATERIALS AND METHODS

Study Design: A prospective observational study.

Study Site: The study was carried out at Care hospital, Nampally, Hyderabad **Study Duration:** The study was conducted over a period of six months.

Sample Size: A total of 100 patients undergoing coronary artery bypass graft (CABG) surgery.

Source of Data

Data for the study were collected from.

- Patient consent forms
- Patient data collection forms
- Patient case sheets and prescriptions
- Patient information leaflets

Inclusion Criteria

- Patients undergoing coronary artery bypass graft (CABG) surgery
- Both inpatient and outpatient cases
- Patients willing to provide informed consent for participation

Exclusion Criteria

- Pediatric patients
- Pregnant women
- Patients unwilling to participate in the study

Study Procedure

A prospective observational study was conducted among CABG patients using a structured data collection form. Demographic details, diagnosis, comorbidities, chief complaints, and medication utilization patterns were collected from patient records during admission to discharge. Data were analyzed using descriptive statistics, and results were presented as frequencies, percentages, tables, and figures.

Plan of Work

1. Preparation of a suitable patient data collection form
2. Collection of patient demographic and clinical data
3. Assessment and classification of:
 - o Medication prescribing patterns,
 - o Disease risk factors,
 - o Demographic characteristics.
4. Evaluation and statistical analysis of collected data.
5. Interpretation of findings to improve understanding of disease management and promote optimal medication therapy.

Ethical Considerations

Ethical clearance for the study was obtained from the Institutional Ethics Committee of CARE Hospital before initiation of the study. Written informed consent was obtained from all participants prior to data collection.

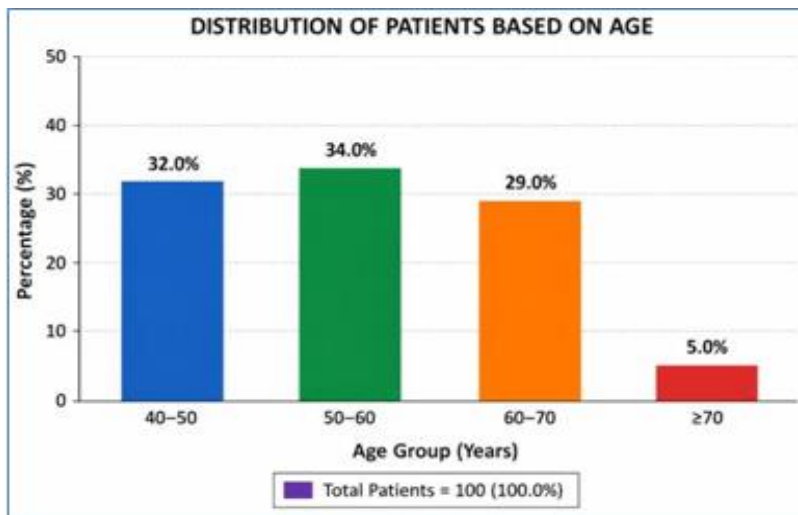
Study Intervention

The study did not involve any intervention or investigational procedure on patients. It was purely observational in nature.

RESULTS

Table 1: Distribution of Patients Based On Age.

Age Group (Years)	Number of Patients	Percentage (%)
40–50	32	32.0
50–60	34	34.0
60–70	29	29.0
≥70	5	5.0
Total	100	100.0

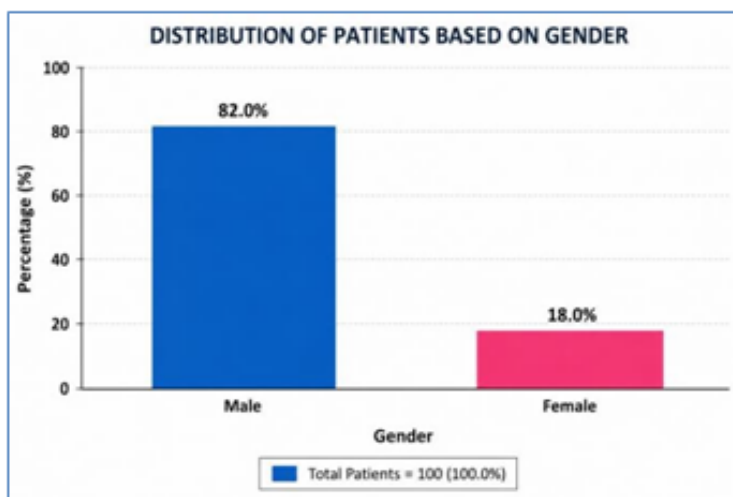


The table and figure shows that most patients belonged to the 50–60 years age group (34%), followed by 40–50 years (32%) and 60–70 years (29%). Only 5% of patients were aged above 70 years. These findings indicate that

middle-aged and elderly individuals were more commonly affected with coronary artery disease requiring CABG surgery.

Table 2: Distribution Of Patients Based On Gender.

Gender	Number of Patients	Percentage (%)
Male	82	82.0
Female	18	18.0
Total	100	100.0

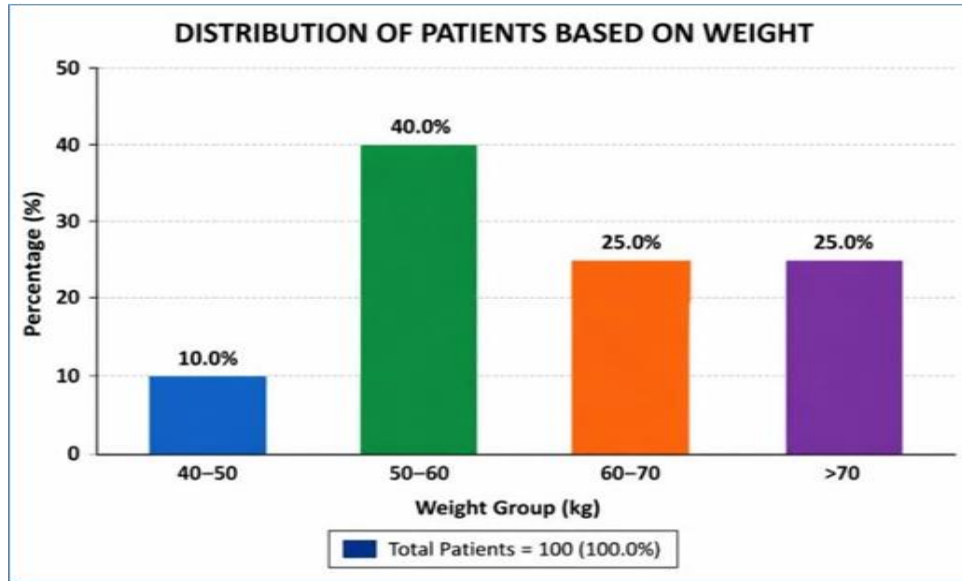


The table and figure explains the gender distribution among CABG patients. Male patients constituted 82% of the study population, whereas females accounted for 18%. The results indicate that coronary artery disease

and CABG surgery were more commonly observed among male patients compared to female patients in the present study.

Table 3: Distribution of Patients Based on Weight.

Weight Group (kg)	Number of Patients	Percentage (%)
40–50	10	10.0
50–60	40	40.0
60–70	25	25.0
>70	25	25.0
Total	100	100.0

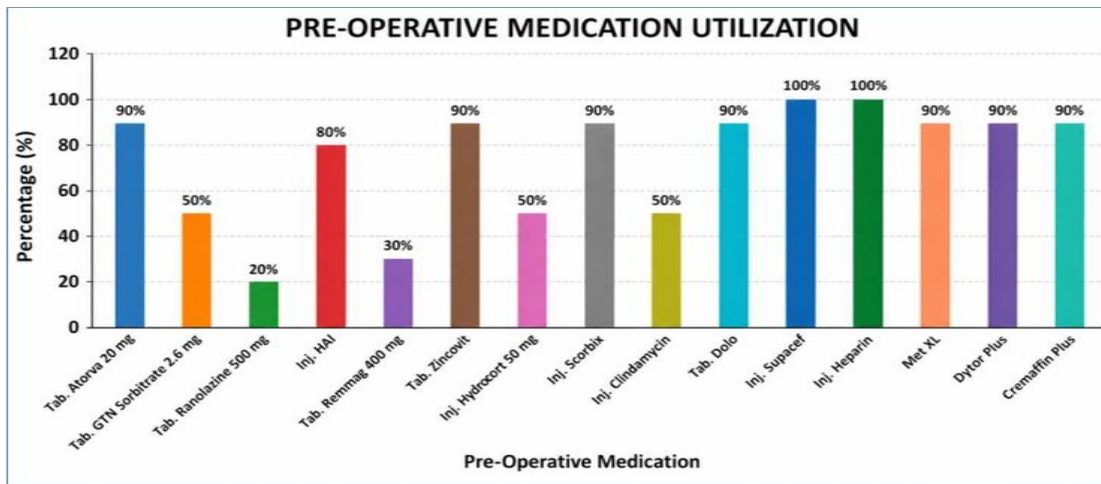


The table and figure explains the distribution of patients according to body weight. Most patients were in the 50–60 kg category (40%). Patients weighing 60–70 kg and

above 70 kg each accounted for 25%, while only 10% of patients belonged to the 40–50 kg group.

Table 4: Pre-Operative Medication Utilization Pattern.

Pre-Operative Medication	Percentage (%)
Tab. Atorva 20 mg	90%
Tab. GTN Sorbitrate 2.6 mg	50%
Tab. Ranolazine 500 mg	20%
Inj. HAI	80%
Tab. Remmag 400 mg	30%
Tab. Zincovit	90%
Inj. Hydrocort 50 mg	50%
Inj. Scorbix	90%
Inj. Clindamycin	50%
Tab. Dolo	90%
Inj. Supacef	100%
Inj. Heparin	100%
Met XL	90%
Dytor Plus	90%
Cremaffin Plus	90%

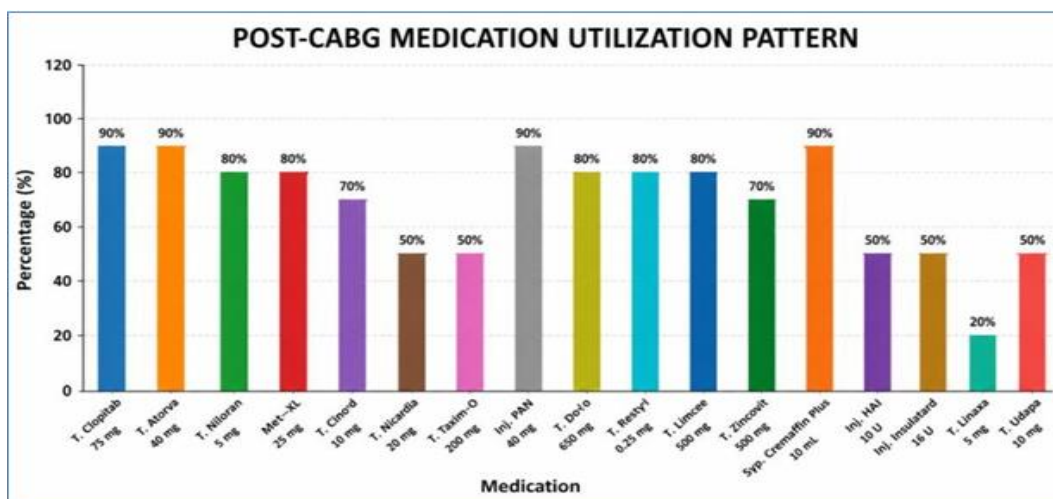


The above table and figure explains the utilization pattern of pre-operative medications among CABG patients. Inj. Supacef and Inj. Heparin were prescribed in 100% of patients. Atorva, Dolo, Zincovit, Met XL, Dytor

Plus, and Cremaffin Plus were used in 90% of patients, indicating extensive prophylactic and supportive medication use before surgery.

Table 5: Post-Cabg Medication Utilization Pattern.

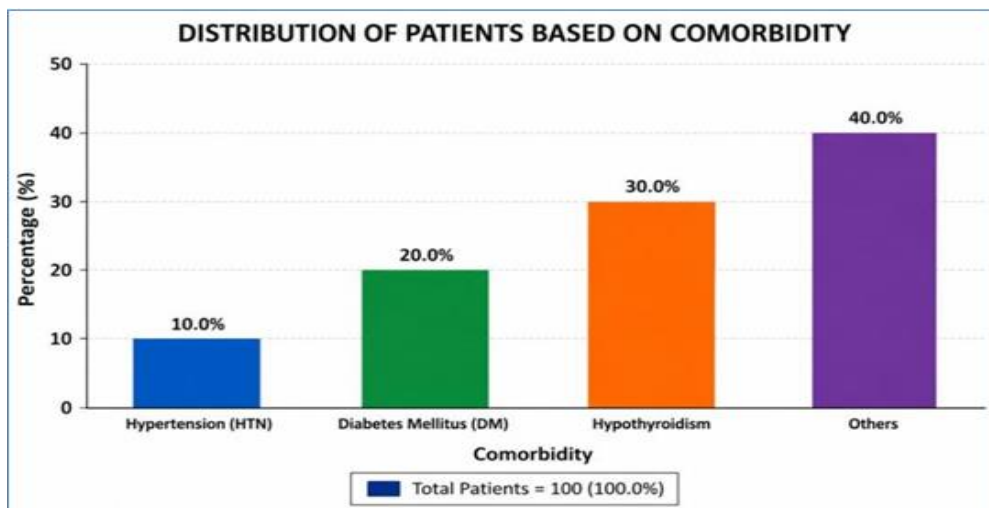
Medication	Dose	Percentage (%)
T. Clopitab	75 mg	90%
T. Atorva	40 mg	90%
T. Niloran	5 mg	80%
Met-XL	25 mg	80%
T. Cinod	10 mg	70%
T. Nicardia	20 mg	50%
T. Taxim-O	200 mg	50%
Inj. PAN	40 mg	90%
T. Dolo	650 mg	80%
T. Restyl	0.25 mg	80%
T. Limcee	500 mg	80%
T. Zincovit	500 mg	70%
Syp. Cremaffin Plus	10 mL	90%
Inj. HAI	10 U	50%
Inj. Insulatard	16 U	50%
T. Linaxa	5 mg	20%
T. Udapa	10 mg	50%



The table and figure explains the medications prescribed after CABG surgery. Clopitab, Atorva, Inj. PAN, and Cremaffin Plus were prescribed in 90% of patients. Niloran, Met-XL, Dolo, Restyl, and Limcee were prescribed in 80% of patients. These medications were mainly used for antiplatelet therapy, gastric protection, pain management, and recovery support.

Table 6: Distribution of Comorbidities Among Patients.

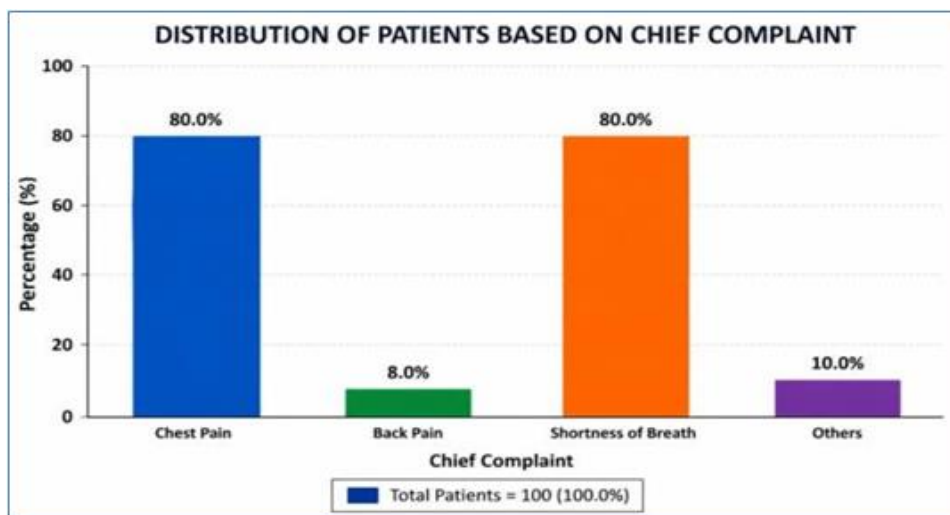
Comorbidity	Number of Patients	Percentage (%)
Hypertension (HTN)	10	10.0
Diabetes Mellitus (DM)	20	20.0
Hypothyroidism	30	30.0
Others	40	40.0
Total	100	100.0



The table and figure explains the distribution of comorbidities among patients. Hypothyroidism was observed in 30% of patients, followed by diabetes mellitus in 20% and hypertension in 10%. Other associated comorbid conditions accounted for 40% of cases, indicating the presence of multiple risk factors among CABG patients.

Table 7: Distribution Of Chief Complaints Among Patients.

Chief Complaint	Number of Patients	Percentage (%)
Chest Pain	80	80.0
Back Pain	8	8.0
Shortness of Breath	80	80.0
Others	10	10.0

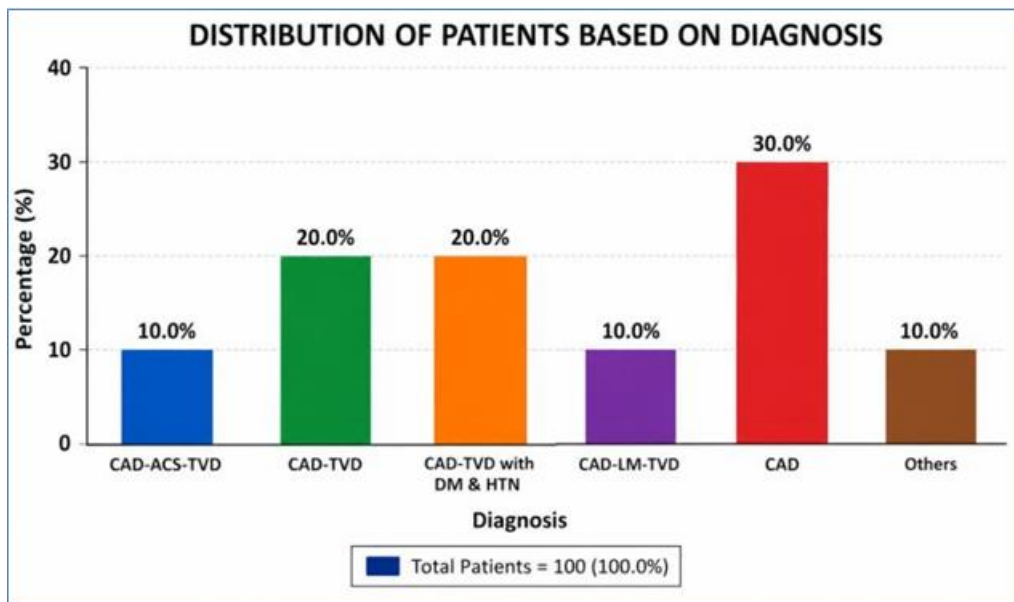


The table and figure explains the chief complaints reported among CABG patients. Chest pain and shortness of breath were the most common symptoms, each observed in 80% of patients.

Back pain was reported in 8% of patients, while 10% presented with other complaints related to cardiovascular disease.

Table 8: Distribution of Diagnosis Among Patients

Diagnosis	Percentage (%)
CAD-ACS-TVD	10.0
CAD-TVD	20.0
CAD-TVD with DM & HTN	20.0
CAD-LM-TVD	10.0
CAD	30.0
Others	10.0
Total	100.0



The table explains the diagnosis distribution among CABG patients. CAD was the most common diagnosis observed in 30% of patients. CAD-TVD and CAD-TVD with DM and HTN each accounted for 20%. CAD-ACS-TVD and CAD-LM-TVD were observed in 10% of patients each, indicating severe coronary artery involvement.

DISCUSSION

The present study showed that most patients undergoing CABG surgery were between 50–60 years of age, with male patients accounting for the majority of cases. Similar findings were reported by Shimizu *et al.* and Thorsteinsson *et al.*, who observed that middle-aged and elderly men were more commonly affected by severe coronary artery disease requiring CABG surgery.^[16,17]

Most patients weighed between 50–60 kg and commonly had comorbidities such as hypothyroidism, diabetes mellitus, and hypertension. Chest pain and shortness of breath were the most frequent presenting complaints. Similar observations were reported by Saldanha *et al.* and Anand *et al.*, who identified hypertension, diabetes, and increasing age as major contributors to severe coronary artery disease requiring surgical intervention.^[18,19]

The study also found extensive use of preventive and supportive medications before and after surgery. Heparin and antibiotics were commonly prescribed pre-operatively, while anti-platelets, statins, anticoagulants, and gastric protective agents were widely used post-operatively. These findings are consistent with ACC/AHA guidelines, which recommend evidence-based pharmacotherapy to reduce postoperative complications and improve graft patency in CABG patients.^[20,21]

In the present study, CAD alone was the most common diagnosis, followed by multi-vessel disease associated with diabetes and hypertension. Severe conditions such as ACS with triple vessel disease and left main disease were also observed. ACC/AHA guidelines support CABG surgery in patients with multi-vessel and left main coronary artery disease, particularly in acute coronary syndrome cases, to improve long-term outcomes.^[22,23]

CONCLUSION

The present study found that effective prophylaxis methods together with correct management of medications during the preoperative period help to stop complications which occur after coronary artery bypass graft (CABG) surgery while also improving patient recovery. The study observed that surgeons used antiplatelets and anticoagulants and statins and antibiotics and beta blockers and gastric protective agents and supportive medications throughout the entire surgical process. The medical methods used in the study helped to minimize surgical complications while achieving better results in patient care. Most patients who underwent CABG surgery at that time period were middle-aged male patients who had diabetes mellitus and hypertension and hypothyroidism which all contribute to cardiovascular risk and postoperative complications. Successful recovery from CABG surgery needs both early diagnosis and proper monitoring and rational pharmacotherapy and continuous postoperative care. The study shows that hospitals should use evidence-based prophylactic methods to protect patients from harm and decrease patient illness while improving the life quality of patients who undergo CABG surgery.

Conflict of Interest

The authors declare that there is no conflict of interest regarding the publication of this study.

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Ethical Approval

Ethical clearance for the study was obtained from the Institutional Ethics Committee of CARE Hospital prior to initiation of the study.

Informed Consent

Written informed consent was obtained from all participants before their inclusion in the study.

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