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A PROSPECTIVE STUDY ON ASSESSMENT OF PRESCRIBING PATTERNS OF ANTI-PLATELETS AND ANTI-COAGULANTS IN CARDIOVASCULAR DISEASES

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ABSTRACT

There are several etiological factors that contribute to CVD, including atrial fibrillation, which causes rheumatic fever and ischemic stroke. These diseases are typically caused by the formation of emboli. Another important factor is atherosclerosis, which is a major cause of CVD. The main objective of the present work is to assess the prescribing patterns of anti-platelets and anti-coagulants in cardiovascular diseases and to determine the quality of life. The study is a prospective observational study conducted in the Department of Cardiology for a period of 6 months. 100-200 patients are supposed to be studied over a period of 6 months according to appropriate parameters and procedure. An informed consent form in a written format was taken from the patient to collect a data. Total 260 subjects were included in our study. Among them 69.24% were males and 30.76% were females. In our study percentage of urban people were 71.54% known with CVDs appears to be more in number than rural people (28.46%). Our study has relatively high number of patients of age group above 50 (32.2%) and the age group above 60 also had a significant percent of 31.5%. The anti-platelets and anti-coagulants were prescribed based on the risk of the patients. If the patient is at higher risk, then there is combination of therapy whether it is dual therapy or triple therapy. The people who are with lower risk, then single anti-platelet or anti-coagulant therapy. Sometimes the antiplatelets are prescribed with the combination of statins. The quality of life is poor in people who are suffering with co-morbid conditions like vascular diseases, expand all the four domain that are present in our questionnaire.

Keywords: Anti-platelets, anti-coagulants, cardiovascular diseases, anti-anginal drugs, beta-blockers

INTRODUCTION

The cardiovascular system is comprised of blood vessels and the heart. A slew of issues will arise in the cardiovascular system (CVS). There are several etiological factors that contribute to cardiovascular diseases (CVD), including atrial fibrillation, which causes rheumatic fever and ischemic stroke. These diseases are typically caused by the formation of emboli. Another important factor is atherosclerosis, which is a major cause of CVD **[1, 2]**.

Sedentary lifestyles, as well as working in industries that are a major cause of CVD. People are working longer hours as a result of technological advancements, and there is less leisure time for physical activities. Other factors that contribute to CVD include a high-calorie diet high in saturated fats and sugars. Diabetes and hypertension are major contributors to CVD. The other reasons are smoking, dyslipidemia, hypertension, diabetes, abdominal obesity, psychosocial factors, regular alcohol consumption are examples for myocardial infarction (MI) **[3, 4]**.

The world health organization defined the quality of life, as a huge concept which is very complex by the persons, physical, level of independence, physiological state and relationship to the environment. Quality of life is one of the most valued outcomes in the system of the healthcare, mainly in the patients who are suffering with cardiovascular diseases. The quality of life is one of the most important measurements for studying the impact of the disease on patients well- being, activity and functions. The quality of life of the people suffering with CVD is less when compared to other people. Because of cardiovascular diseases 18 million of deaths per annum worldwide. The people who are suffering with cardiovascular diseases may experience some of the symptoms like fatigue, dyspnea and chest pain. These symptoms may affect the physical, emotional and social aspects of quality of life of patients **[5-8]**.

The aim of the present research work is to assess the prescribing patterns of anti-platelets and anti- coagulants in cardiovascular diseases and to determine the quality of life.

MATERIALS AND METHODS

Study design and study period

The study is a prospective observational study conducted in the Department of Cardiology for a period of 6 months.

Data source

The data was collected from the outpatient and inpatient departments by surveying the patients and their treatment pattern. The collected data was substantiated and verified by the hospital preceptors for the study.

Study site

The study will be conducted in Kamineni Hospitals, L.B. Nagar, Hyderabad, Telangana, India.

Sample size

100-200 patients are supposed to be studied over a period of 6 months according to appropriate parameters and procedure.

Study criteria

Inclusion criteria:

- Subjects who are on anti-coagulant and anti-platelet therapy.
- Subjects' history and social habits are diagnosed with CVDs.
- Subjects above 18 years.
- Subjects who are supportive for study.

Exclusion criteria:

- Subjects under hemodialysis.
- Lactating women, and pediatrics.
- Pregnant women, subjects with other recent surgical history.
- Subjects who are not supportive for study.

Method of collection

An informed consent form in a written format was taken from the patient to collect a data. Data collection form includes;

- Demographic details of patients such as age, gender, weight, marital status, educational status, employment, profession, past medical history, family history and social habits.
- Mac New questionnaire was included to evaluate the QOL according to emotional, physical, symptomatic and social parameters.

Statistical analysis

- ✓ Descriptive analysis was done using SPSS software to determine mean and standard deviation of the collected data.
- ✓ Statistical tool Chi-square test was performed to determine P-value between the different collected data like diagnosis versus treatment type, NYHA versus diagnosis, MRCB versus diagnosis, past history versus diagnosis, social history versus diagnosis, age versus emotional symptoms, age versus gastric symptoms, age versus social symptoms and age versus physical symptoms.
- ✓ P-value is used to determine the statistical significance within statistical hypothesis signific for the assessment of quality of life in CVD patients to the baseline visit.
- ✓ The P-value was set at <0.05 and confidence interval was 95% **[9-14]**.

RESULTS

Percentage of males known with CVD was more in number than females as mentioned in the below **Figure 1**.

Figure 2 indicates ethnicity wise distribution of patients. Percentage of urban

people (71.53%) known with CVD appear to be more in number than rural people (28.46%).

Figure 3 indicates age versus gender wise distribution of patients. No. of males diagnosed with CVD was more than females. People with age above 50 years are more prone to CVD. With increasing age, females are more likely to get heart disease condition. With increasing age, the risk of getting CVD was doubled in male patients.

Figure 4 indicates social history of patients. Among 260 patients, 53.4% (136) are having risk factors for CVD. 15.3% (40) of patients had habit of smoking and 32.3% (84) had habit of drinking.

Figure 5 indicates family history of patients. Among 260 patients, 66 patients (25%) had family history of CVD and 194 patients (75%) had no family history of CVD.

Figure 6 indicates past medical history of patients. Among 260 patients, 120 patients have hypertension (46%), 98 patients have diabetes (38%), 14 patients have nervous disorder (5.3%), 17 patients have kidney disorder (6.5%), 11 patients have pulmonary disorder (4.2%).

Figure 7 indicates complaints wise distribution of patients. Most common complaints were chest pain (83%), shortness of breath (46%), sweating (40%), palpitations (18%) and vomiting (15%).

Figure 8 indicates types of CVDs. Among 260 patients, 46.1% of patients have coronary artery disease, 18.5% of patients have MI, 10.7% patients have angina, 3.07% patients have rheumatic heart disease, 12.3% patients have acute coronary syndrome, 9.2% patients have heart failure.

Commonly prescribed drug classes: Among 260 patients, 222 (85.384%) took statins, 216 (83.076%) took anti-platelets, 188 (72.307%) took anti-coagulants, 160 (61.538%) took beta-blockers, 140 (53.84%) underwent a surgery, 130 (50%) took diuretics, 60 (23.07%) took angiotensin receptor blockers, 54 (20.76%) took ACE inhibitors, 40 patients (15.384%) took calcium channel blockers, and 40 (15.384%) took heart failure drugs **(Figure 9)**.

Among 260 patients, 190 (73.07%) received clopidogrel, 220 (84.615%) received aspirin, 120 (46.153%) received ticagrelor, 140 (63.84%) received dual therapy and 80 (30.76%) received triple therapy **(Figure 11)**.

Among 260 patients, 112 (43.07%) received nicorandil, 42 (16.15%) received ivabradine, 30 (11.53%) received nitro-glycerine, and 12 (4.61%) received trimetazidine **(Figure 12)**.

Other drugs:

- ✓ Among 260 patients, 52 (20%) received telmisartan, 8 (3.076%) received olmesartan.

- ✓ Among 260 patients, 30 (11.538%) received amlodipine, 10 (10%) received cilnidipine.
- ✓ Among 260 patients, 80 (30.76%) received furosemide, 36 (13.84%) received spironolactone and 14 (5.3%) received torsemide.

Medical research council breathlessness (MRCB)

Figure 13 indicates diagnosis versus MRCB-grade wise distribution of patients. In CAD patients, 16 (6%) have grade-0 shortness of breath (SOB), 42 (16.2%) have grade-1 SOB, 50 (19.3%) have grade-3 SOB, 6 (2.3%) have grade-4 SOB. In angina 4 patients (1.6%) have grade-0 SOB, 8 (3%) have grade-1 SOB, 10 (3.8%) have grade-2 SOB, 4 (1.6%) have grade-3 SOB, 2 (0.8%) have grade-4 SOB. In MI 8 (3%) have grade-0 SOB, 12 (4.6%) have grade-1 SOB, 16 (6.1%) have grade-4 SOB, 8 (3%) have grade-3 SOB, 4 (1.6%) have grade-4 SOB. In ACS 4 (1.6%) have grade-0 SOB, 8 (3%) have grade 1 SOB, 12 (4.6%) have grade-2 SOB, 4 (1.6%) have grade-3 SOB, 2 (0.8%) have grade-4 SOB. In heart failure 2 (0.8%) have grade-0 SOB, 2 (0.8%) have grade-1 SOB, 8 (3%) have grade-2 SOB, 10 (3.8%) have grade-3 SOB, 2 (0.8) have grade-4 SOB. In Rheumatic heart disease 2 (0.8%) have grade-0 SOB, 2 (0.8%) have grade-1 SOB, 4 (1.6%) have grade-2 SOB, 2 (0.8%) have grade-3 SOB.

The emotional symptoms of the patients, among 260 patients, 90 patients (32.6%) were good, 76 patients (29.5%) were fair, the physical symptoms of the patients, among 260 patients (54.615%) were mild, 86 patients (33.676%) were moderate and 32 patients (12.309%) were severe. Among 260 patients, 184 patients (70.769%) were independent and 76 patients (29.231%) were dependent. Among 260 patients 124 patients (47.6924%) were good, 112 patients (43.0769%) were fair, 24 patients (9.2307%) were poor.

Chi-square analysis

Chi-square analysis was performed by means of SPSS software between the below considered variables in the **Table 1** and the P-value was clinically significant (0.05).

Table 2 shows the information regarding mean, standard deviation and P-value of various variables.

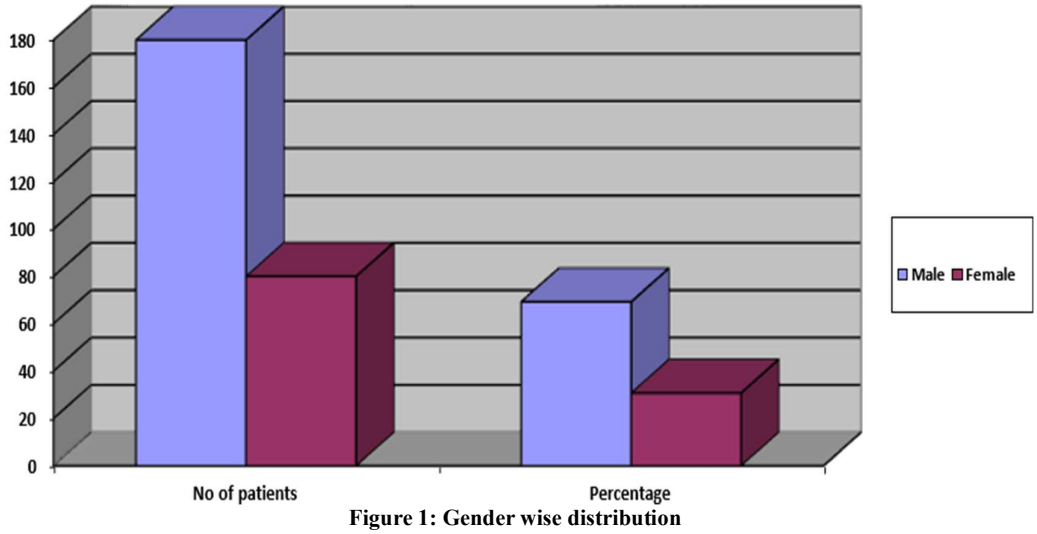

Figure 1: Gender wise distribution

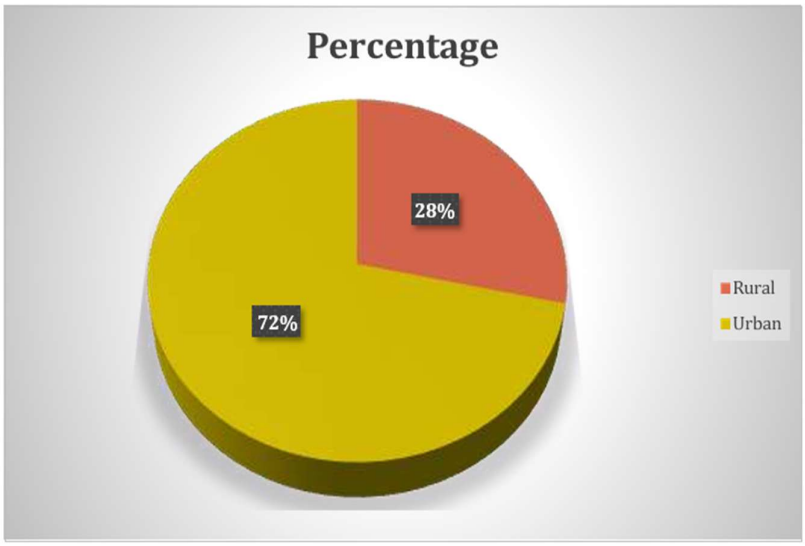

Figure 2: Ethnicity wise distribution of patients

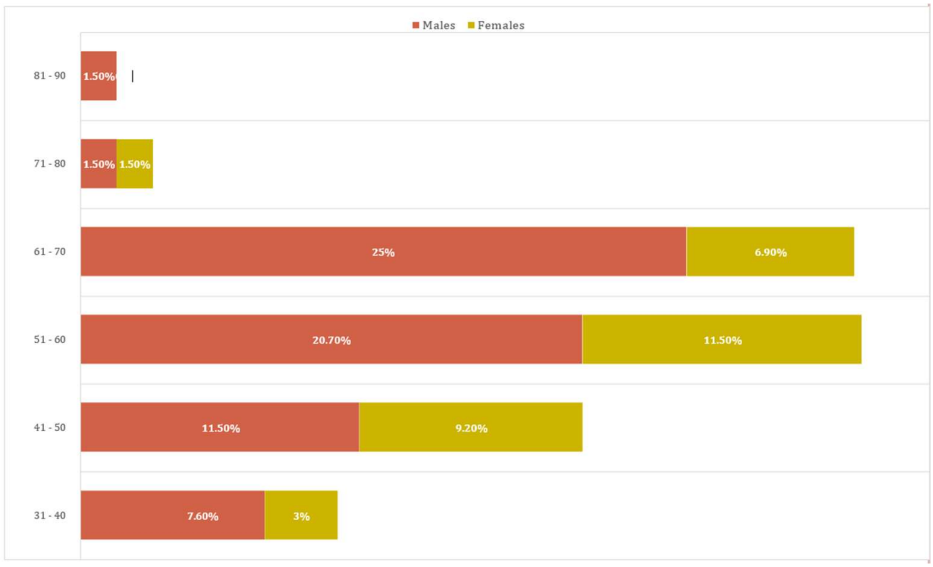

Figure 3: Age versus gender wise distribution of patients

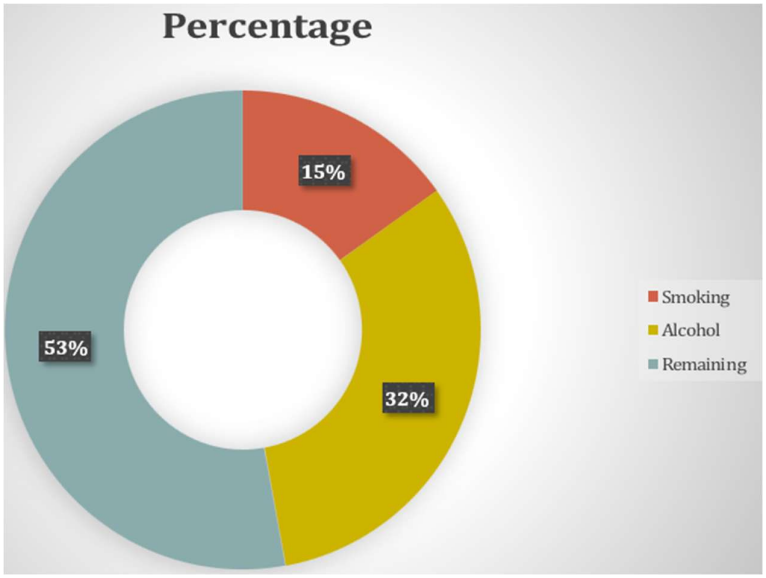

Figure 4: Social history of patients

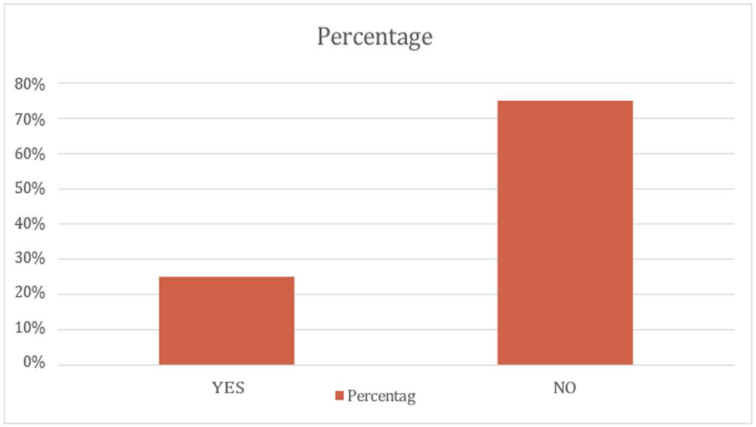

Figure 5: Family history of patients

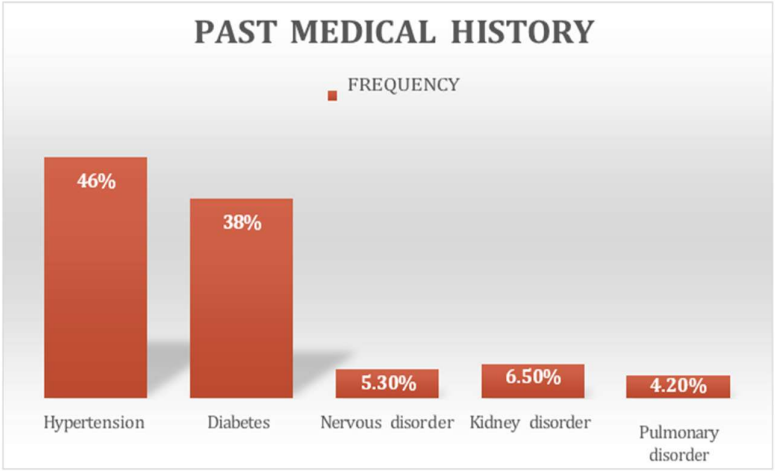

Figure 6: Past medication history

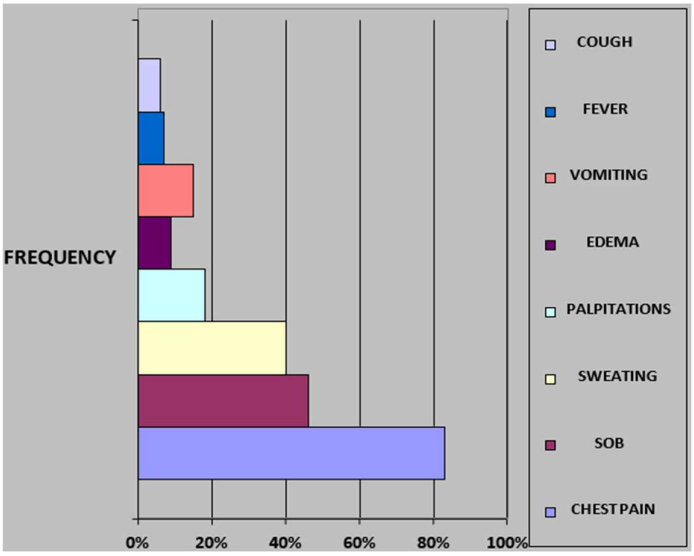

Figure 7: Complaints wise distribution of patients

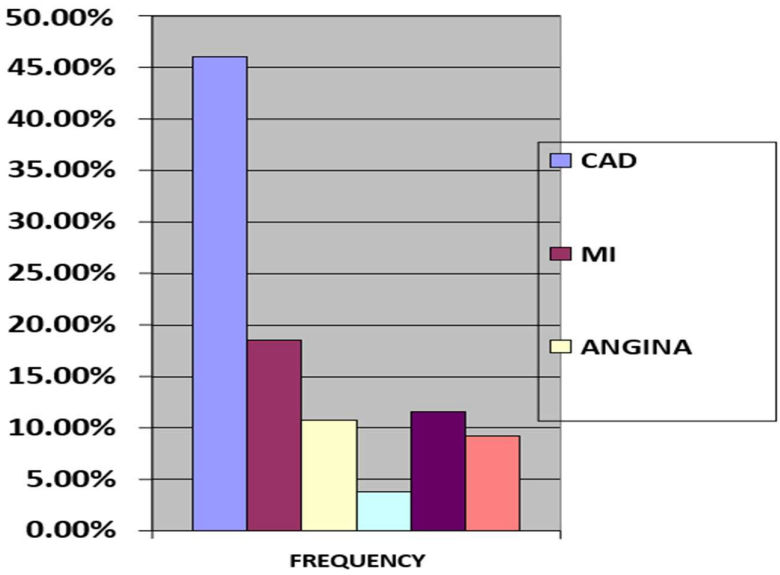

Figure 8: Types of CVDs

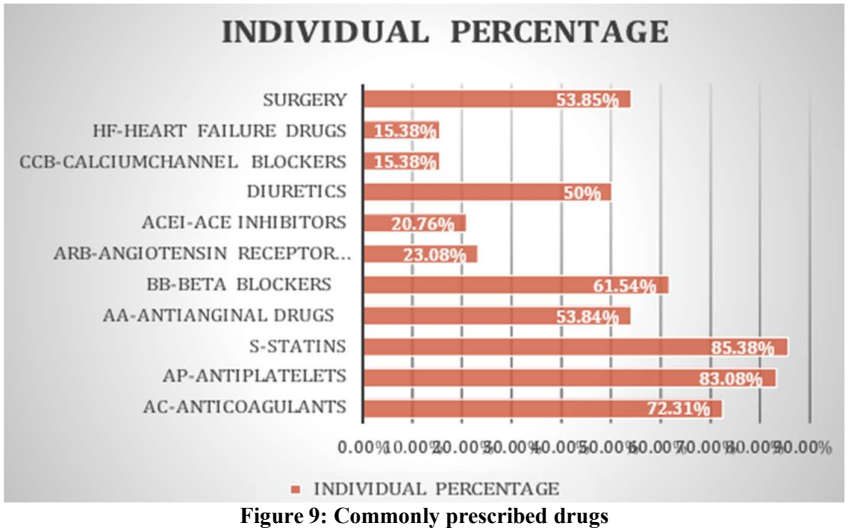

Figure 9: Commonly prescribed drugs

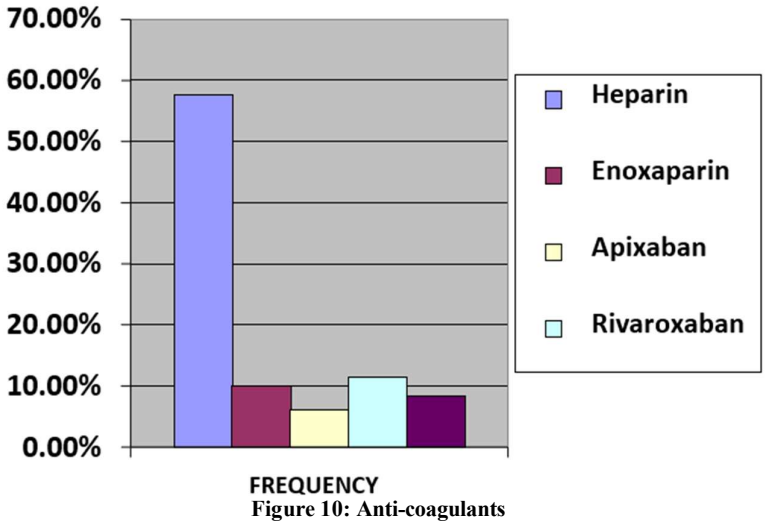

Figure 10: Anti-coagulants

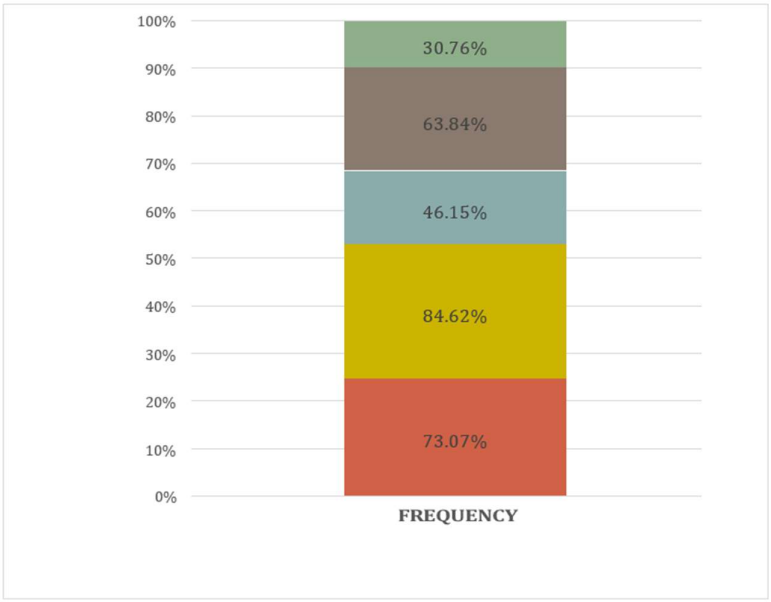

Figure 11: Anti-platelets

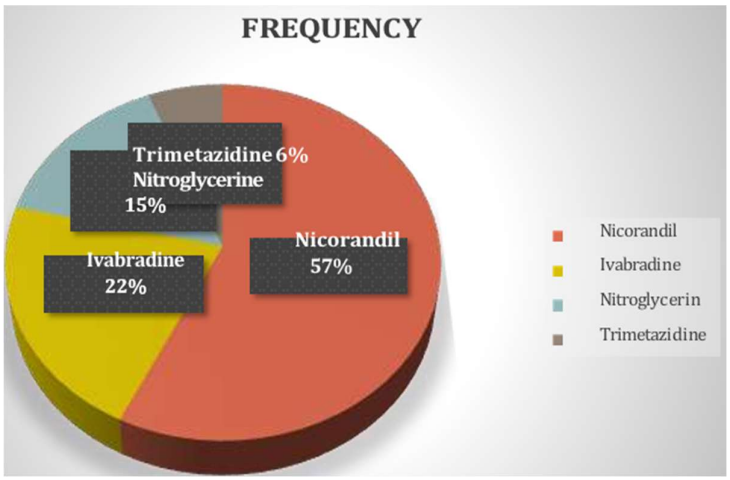

Figure 12: Anti-anginal drugs

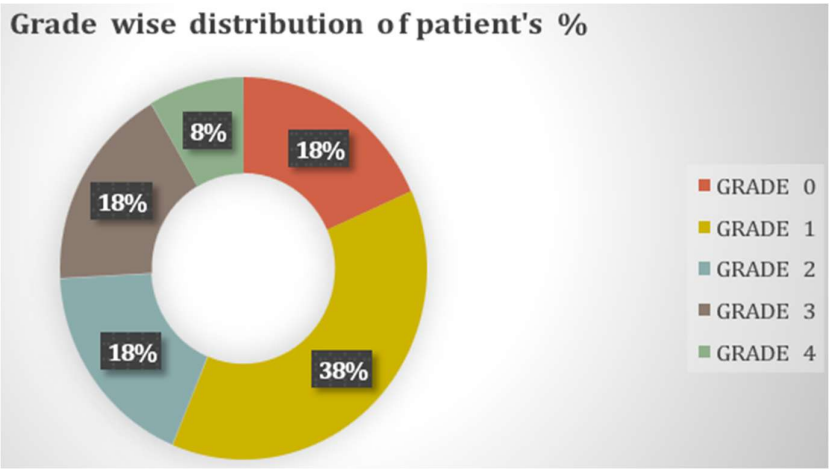

Figure 13: MRCB-grade wise distribution of patients

Table 1: Chi-Square P-value

Chi-square variables	Significant value
Age vs physical	0.000
Age vs emotional	0.004
Age vs gastric	0.000
Age vs social	0.000
MRCB vs diagnosis	0.001
Past history vs diagnosis	0.0032

Table 2: Mean, standard deviation and P-value

Characteristics	N	Mean	Standard deviation	P-value
Age	260	2.8308	1.13313	0.004
Gender	260	1.3846	0.48744	0.005
Ethnicity	260	1.6923	0.46243	0.004
Past history	260	1.7692	1.12218	0.008
Diagnosis	260	2.3385	1.57467	0.001
MRCB scale	260	2.8000	1.12809	0.005
Mac new emotional score	260	2.1385	0.98230	0.001
Mac new physical score	260	1.6000	0.70267	0.005
Mac new gastric score	260	1.6000	0.70267	0.007
Mac new social score	260	1.2308	0.42460	0.006

DISCUSSION

A prospective study on the assessment of prescribing patterns of anti-platelets and anti-coagulants in CVD patients and to determine the health-related quality of life was conducted in tertiary care hospital in both in-patient and out-patient of Cardiology Department. The data was collected for 260 patients using data collection form.

Total 260 subjects were included in our study. Among them 69.24% were males and 30.76% were females. In our study percentage of urban people were 71.54% known with CVDs appears to be more in number than rural people (28.46%). Our study has relatively high number of patients of age group above 50 (32.2%) and the age group above 60 also had a significant percent of 31.5%. In our study, among 260

patients, 15% were smokers and 32% were alcoholics in CVD patients. Out of 260 patients, co-morbid conditions were hypertension-46%, diabetes 38%, nervous disorder-5.3%, kidney disorder-6.5%, pulmonary disorder-4.5%. In our study the major complaints of the patients were chest pain-83%, SOB-46%, sweating- 40% and the minor complaints include palpitations-18%, edema-9%, vomiting-15%, fever-7% and cough-6%.

Among 260 patients, 120 (46.1%) were diagnosed with coronary artery disease (CAD), 48 patients (18.5%) were diagnosed with MI, 28 patients (16.7%) were diagnosed with angina, 8 patients (13.07%) were diagnosed with rheumatic heart disease, 32 patients with acute coronary syndrome (ACS) (12.3%) and 24 (9.2%) with heart failure.

Patients are categorized based on MRCB scale and their diagnosis. The patients who are diagnosed with CAD have (6.1) of grade -0, (16.2%) of grade -1, (19.3%) of grade -2, (2.3%) of grade -3, (6.1%) of grade -4. The patients diagnosed with angina have (1.6%) of grade -0, (3.1%) with grade -1, (3.8%) with grade -2, (1.6%) with grade -4. The patients diagnosed with ACS have (1.6%) of grade -0, (3%) have grade -1, (4.6%) with grade -2, (2.1%) with grade -3, (0.8%) with grade -4.

The patients diagnosed with heart failure (0.8%) with grade -0, (0.8%) with grade -1, (3%) with grade -2, (2.1) with grade -3, (90.8%) with grade -4. Among 260 patients, the patients received both single anti-coagulant therapy and dual anti-coagulant therapy. The commonly prescribed drug classes are anti-coagulants (72.307%) and anti-platelets (83.076%) and statins (85.384%), anti-anginal drugs (53.84%) and beta-blockers (61.538%), angiotensin-receptor blockers (23.076%), ACE inhibitors (20.76%), diuretics (50%), calcium channel blockers (15.3845), heart failure drugs (15.384%), and surgery (53.846%) [15-19].

Commonly prescribed drugs in each class:

- Commonly prescribed anti-platelets are aspirin, clopidogrel, ticagrelor. They are prescribed in combination.
- Commonly prescribed anti-coagulants were heparin, enoxaparin (10%), apixaban (6.15%), rivaroxaban (11.52%). The dual therapy is given about (8.46%).
- Commonly prescribed anti-anginal drugs were nicorandil (43.07%), ivabradine (42%), nitro-glycerine (4.61%).
- Telmisartan was the most commonly prescribed angiotensin-receptor blocker.
- Metoprolol was the most prescribed beta-blocker.

- The diuretics that are commonly given are furosemide, spironolactone, torsemide.
- Amlodipine and cilnidipine are prescribed commonly among calcium channel blockers.

CONCLUSION

The cardiovascular diseases are the diseases that affects the blood vessels and the heart. There are different etiological factors associated with the cardiovascular diseases and different clinical symptoms are associated with it. Males are more prone to cardiovascular diseases. The quality of life in females are poor. With increasing age, the risk of acquiring cardiovascular diseases increased, the quality of life is affected with increasing age. The cardiovascular diseases are mostly seen in urban people than in rural people. The people who have comorbidities of hypertension and diabetes have increased risk for developing cardiovascular diseases. People who are suffering with both hypertension and diabetes have the double increased cardiovascular diseases. The quality of life of people is more worsened within the people who are suffering with nervous, kidney pulmonary diseases.

The anti-platelets and anti-coagulants were prescribed based on the risk of the patients. If the patient is at higher risk, then there is combination of therapy whether it is dual therapy or triple therapy. The people who are with lower risk, then single anti-platelet or anti-coagulant therapy. Sometimes the antiplatelets are prescribed with the combination of statins. The quality of life is poor in people who are suffering with co-morbid conditions like vascular diseases, expand all the four domain that are present in our questionnaire. The people suffering with the cardiovascular diseases, explained the all 4-domains that are present in our questionnaire. The people with cardiovascular diseases majorly experience poor physical and gastric conditions. Quality of life is affected in CVD patients; the surgeries increased the survival.

Conflicts of interest

None.

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