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A Review on Drug Utilization Trends in Coronary Artery Diseases

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ABSTRACT

Coronary artery disease is a condition in which there is an inadequate supply of blood and oxygen to a portion of the myocardium. It is the major cause responsible for mortality more in younger age group than in elderly. Since it is an emergency condition where usage of many drugs during its management is common. The study of drug utilization is a component of a medical audit and periodic evaluation should be done to enable suitable modifications in the prescription of drugs and maximize the therapeutic benefit and minimize the adverse effects. When new drugs are used additional information on safety and efficacy may be generated. In this review most of the prescription contain anti-platelet drugs, ACE inhibitors/ ARBs, Statins, Beta-blockers, Nitrates, Calcium channel blockers and Diuretics.

Keywords: Drug Utilization, Coronary Artery Diseases, Anti- Platelet Drugs

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INTRODUCTION

Cardiovascular diseases (CVDs) are the main cause of mortality globally, accounting for 35% of all deaths, i.e. almost one million deaths each year especially in India it accounts for around one-fourth of all deaths. Various studies from India have shown high prevalence of the disease, approaching approximately 11% in the urban population and 7% in the rural population.

Drug utilization research was defined by WHO in 1977 as “study of the marketing, distribution, prescription, and use of drugs in a society, with special emphasis on the resulting medical, social and economic consequences”.

In India, many socio-cultural factors like national drug policy, illiteracy, poverty, use of multiple health care systems, drug advertising, and promotion, the sale of prescription drugs without a prescription, competition in the medical and pharmaceutical marketplace contributes to the importance of drug utilization. So nowadays drug utilization studies have become a potential tool to be used for the evaluation of health systems. The analysis of prescription pattern in patients with CAD would help in recognizing the current trend of treating patients with CAD having diverse presentation and associated co morbidities in the patients. Many Studies have reported that, low availability of drugs and lack of suitable long term care in patients of coronary artery disease has been considered as one of the important contributing factors responsible for increased mortality.

CORONARY ARTERY DISEASE

Ischemic Heart Diseases refers to a group of closely related syndrome characterized by an imbalance between myocardial oxygen demand and blood supply. The most common cause is narrowing of the lumen of coronary artery by atherosclerosis. Hence it is often termed as Coronary Heart Disease or Coronary Artery Disease. It encompasses various types of Angina, Myocardial Infarction (ST segment elevated / non- ST segment elevated) and sudden cardiac death.

The major risk factors for CAD in most studies are hypertension followed by diabetes mellitus, dyslipidemia, obesity, sedentary life style, valvular heart disease and non- modifiable risk include age, gender, family history, genetic factors.

Although patients with greater than 45 years shows increased incidence of coronary artery disease, highest number of patients are seen at age group of 51-60. The common categories of CAD encountered in the studies were anterior and inferior wall infarction, Non-ST segment elevated myocardial infarction (NSTEMI), ST segment elevated myocardial infarction (STEMI), unstable angina, stroke with myocardial infarction, chronic stable angina, myocardial infarction (MI) with atrial fibrillation. The studies are shown that there has been a substantial reduction in the incidence

of STEMI and a subsequent increase in the incidence of NSTEMI. The exact reason for this changing trend is unknown but probably due to improved treatment strategies for STEMI.

DRUG USE PATTERN IN CAD

The goal of pharmacological anti-ischemic therapy is to decrease myocardial oxygen demand (secondary to a decrease in heart rate, blood pressure, preload or myocardial contractility) or to increase myocardial oxygen supply (by administration of oxygen or through coronary vasodilatation). The American College of Cardiology Federation / American Heart Association have recommended antiplatelet drugs, anti-coagulants, anti-anginal drugs, beta blockers, angiotensin converting enzyme inhibitors (ACEI)/ angiotensin II receptor blockers (ARBs), Calcium channel blockers, diuretics based on results of multiple controlled trials to improve the survival benefits.

In most of the studies the percentage of drug prescribed in generic name is very low. Thus the physician should concentrate on prescribing drugs with their generic names to the maximum in order to minimize the cost-burden on the patients.

Aspirin and Clopidogrel were the most commonly prescribed anti- platelet drugs in all studies. The physicians in India recommends that all patients with MI should receive dual anti- platelet therapy because combination therapy offers a better outcome than patients with single therapy of Aspirin or Clopidogrel. The prescription is then followed by an anti lipidemic agent like Atorvastatin, which has shown a predominant role in lowering the levels of cholesterol- leading cause of coronary artery occlusion. Next is the category of vasodilators, of which Isosorbid dinitrate is the most commonly prescribed drug.

Most of the research articles say that the patient with CAD has one or more co- morbidities like Hypertension or Diabetes mellitus. The management of hypertension is better accomplished with ACE inhibitors, ARBs and beta blockers.

ACE inhibitors and ARBs were utilized more in patients with renal dysfunction whereas Calcium channel blockers are significantly more used in patients with hypertension and renal dysfunction.

CONCLUSION

In conclusion this review provides an insight on the various coronary artery disorders and the spectrum of cardiovascular drug utilization in them. From the findings reported by a number of similar studies which are conducted across the country there is no considerable differences in the drug therapy given to patients with CAD. However it has been identified that there are some areas which need further rationalization in prescription pattern. Most of the patients suffering from CAD

are male, the risk of disease increases with increase in age. The most common drugs prescribed are Anti platelets, Statins, ACE inhibitors/ ARBs and Beta blockers.

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