

Compliance of Antiplatelet Drug Intake in Patients after Coronary Angioplasty-A Prospective Observational Study.

Dr. V. Anjith, P. Lazaru, B. Ramya, K. Abhinaya, R. Poornima, V. Anusha.
Department Of Pharmacy Practice, NIPS College, Narasaraopeta, Guntur dist., Andhra Pradesh, INDIA.

Submitted: 10-12-2021

Accepted: 25-12-2021

ABSTRACT:

Introduction: Compliance to Antiplatelet therapy is critical to successful treatment of cardiovascular conditions. Coronary intervention in acute myocardial infarction treatment has been widely applied around the world, although its long-term effects can be limited by the occurrence of reinfarction, stent thrombosis, and restenosis in intravascular interventions.

Objective: To evaluate various Antiplatelet drug regimen in patients post angioplasty, Duration of Antiplatelet drug Non-compliance and complications of Antiplatelet drug regimen.

Methods: A prospective, observational study was performed on 137 patients. The total number of patients including their PTCA dates, Antiplatelet Drugs prescribed, past medical and medication history were collected from out patient records. The Medication Adherence, Factors for Non Adherence and complications due to Non Adherence of antiplatelet drugs were calculated in each patient

Results: We have collected a total of 137 cases of Post Coronary Angioplasty, Among those patients under Single Antiplatelet Therapy are (26.8% i.e., n= 36), Dual Antiplatelet Therapy are (70.1% i.e., n=96), and Triple Antiplatelet therapy are (3.64% i.e., n=5). We also calculated the No of patients who are Compliant and Non-Compliant to Antiplatelet therapy. Patients under single Antiplatelet therapy Compliance 25.2% (n=28), Non-compliance are 30.7% (n=8) under Dual Antiplatelet therapy Compliance 70.2% (n=78), Non-compliance 69.2% (n=18), under Triple Antiplatelet therapy Compliance 4.5% (n=5), Non-compliance 0% (n=0).

Conclusion: A total of 137 patients were collected as a part of this study, out of which 81.02% patients were compliant to therapy. Among Antiplatelet drugs (Aspirin, Clopidogrel, Ticagrelor), Ticagrelor had less complications rate, Aspirin and Clopidogrel combination has high complications rate. 50% of cases who were on Aspirin and Clopidogrel therapy were observed with complications. We conclude that the complications in post coronary angioplasty were

observed in age groups of 40-70 years. Among the complications, the main factor that affects is improper administration of medication. Ticagrelor is the best drug after coronary angioplasty as it has less complication rate compared to Aspirin and Clopidogrel.

Key words: Compliance, Non-Compliance, Antiplatelet therapy, Post Coronary Angioplasty.

Abbreviations:

ADR – Adverse Drug Reactions

SAPT -Single Antiplatelet Therapy

TAPT -Triple Antiplatelet Therapy

DAPT -Dual Antiplatelet Therapy

PCI -Percutaneous Coronary Intervention

PTCA -Percutaneous Transluminal Coronary Angioplasty

I. INTRODUCTION:

Coronary angioplasty is a procedure used to widen blocked or narrowed coronary arteries (the main blood vessels supplying the heart). The term "**angioplasty**" means using a balloon to stretch open a narrowed or blocked artery [2]. Mechanism involve: Compression and redistribution of the atherosclerotic plaque, Embolism of plaque contents, Aneurysm formation, Disruption of the plaque and arterial wall with distortion and tearing of the intima and media which leads to denudation of the endothelium, platelet adhesion and aggregation, thrombus formation and smooth muscle proliferation.

PTCA is widely practiced and has risks, but major procedural complications are rare. The mortality rate during angioplasty is 1.2%. People older than the age of 65, with kidney disease or diabetes, women and those with massive heart disease are at a higher risk for complications. Treatment after PTCA is highly recommended in order to prevent restenosis.

Anti-platelet drugs are used widely to prevent restenosis and further complications.

Failure to abide by the treatment was closely related to a doubled risk of myocardial infarction, four times increase in risk of acute coronary syndrome, and twice the cost for hospitalization and treatment. Despite its critical role, previous studies showed that this phenomenon was controlled only during the time the patient stayed in the hospital; after hospital discharge, the rate of continuing to take the drugs after the medical intervention was relatively low.

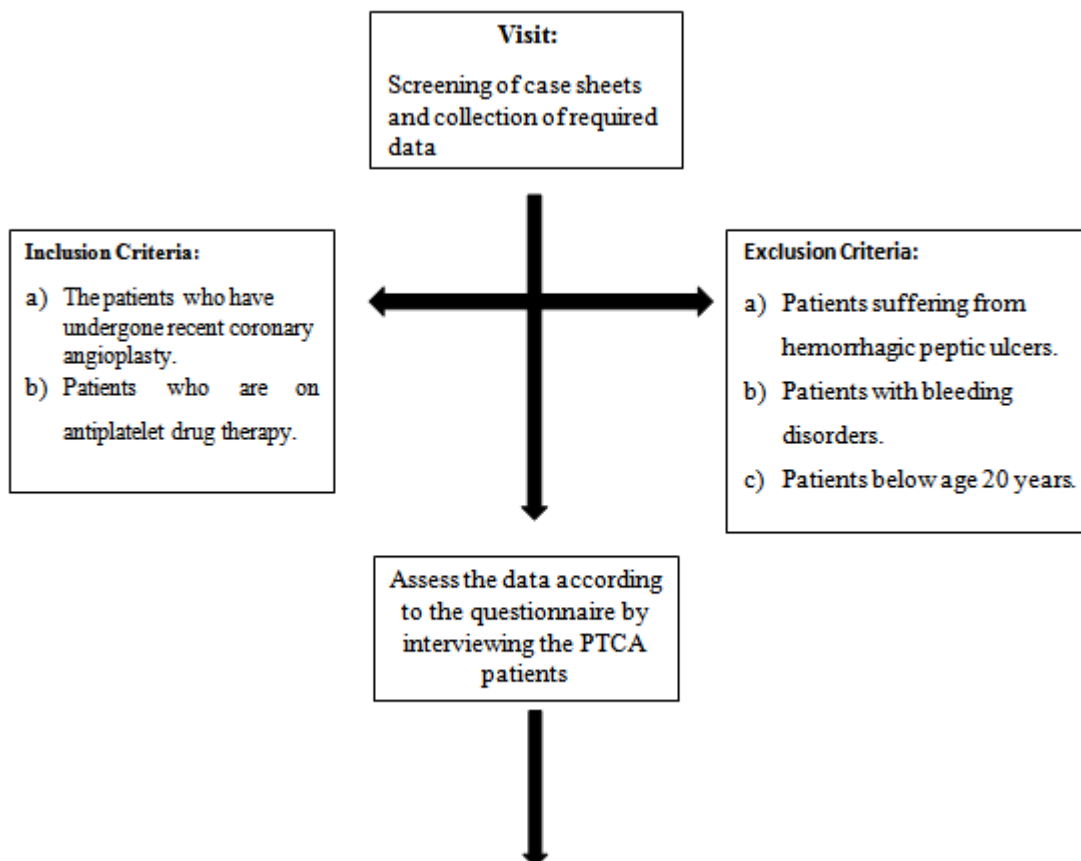
A number of factors associated with nonadherence to antiplatelet therapy have been examined by prior studies. They include lower education level, immigration status, poor awareness of antiplatelet drugs, high drug costs, lack of understanding about medical conditions or the value of adherence to treatment, ethnic minorities,

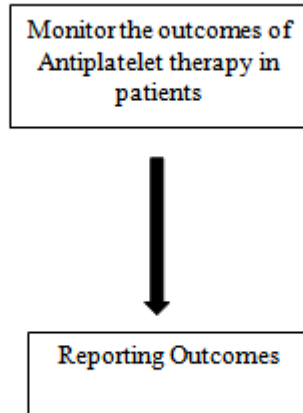
elderly, side effects of drugs, ineffective treatment, financial reasons, medication beliefs, and effects of herbal medicine.

II. MATERIALS AND METHODS:

A prospective observational study was conducted in out-patient department at Guntur private hospitals. It was carried out for a period of 6 months. A total of 137 subjects are included in the study. The inclusion criteria were subjects who have undergone recent coronary angioplasty, subjects who are on antiplatelet drug therapy. The Exclusion criteria were subjects with bleeding disorders, Age below 20 years. The study was conducted over a period of 6 months.

PLAN OF WORK:





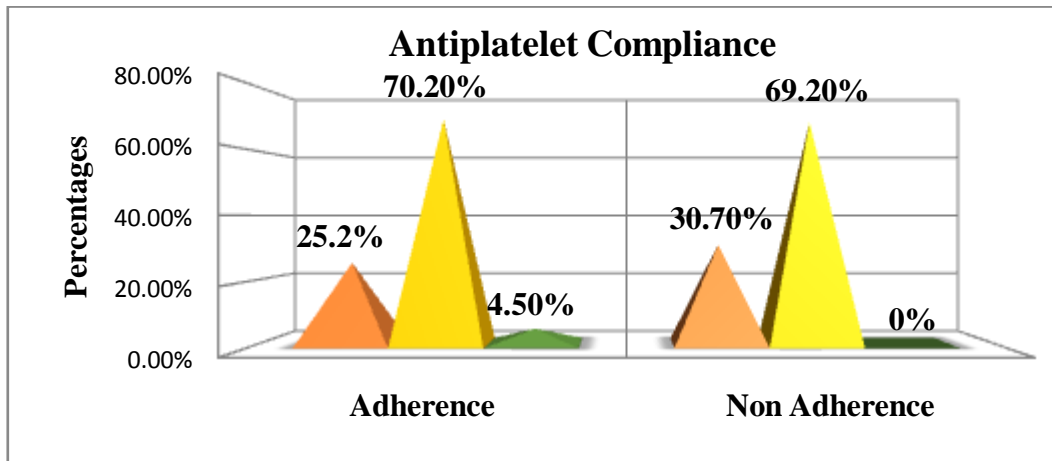
III. RESULTS:

We collected a total of 137 cases of Post Transluminal Coronary Angioplasty, with Antiplatelet drug therapy. Among them most of the patients were compliant to Antiplatelet therapy 81.02% (i.e., n=111) and 19% (i.e., n= 26) were Non-compliant to Antiplatelet therapy.

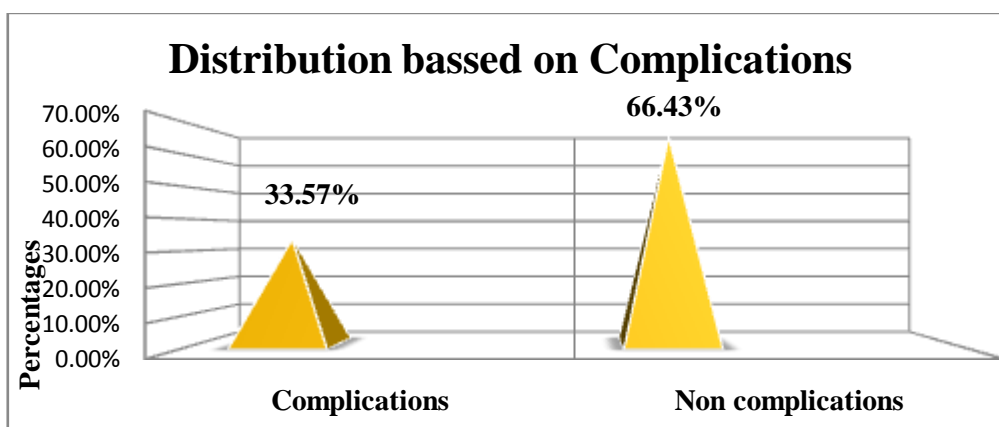
Distribution of the patients based on the Antiplatelet Therapy: Single Antiplatelet Therapy

26.8% (n=36), Dual Antiplatelet Therapy 70.1% (n=96), Triple antiplatelet Therapy 3.64% (n=5).

Distribution of patients based on Antiplatelet drugs compliance: Among all the patients with Adherence, single Antiplatelet therapy 25.2%(n=28), Dual Antiplatelet therapy 70.2% (n=78) and Triple Antiplatelet therapy 4.5%(n=5). Among all the patients with Non Adherence, Single Antiplatelet Therapy 30.7%(n=8), Dual Antiplatelet Therapy 69.2% (n=18), Triple Antiplatelet Therapy 0%(n=0).



Distribution of patients based on Complications: Complications 33.57% (n= 46), Non complications 66.43% (n=91).



Distribution of patients based on complications of Antiplatelet therapies: Among the patients taking Single Antiplatelet Therapy, 25% (n=9) are with complications and 75% (n=27) are without complications. Among the patients taking Dual Antiplatelet Therapy, 37.5% (n=36) are with complications and 62.5% (n=60) are without complications. Among the patients taking Triple Antiplatelet Therapy 20% (n=1) are with complications and 80% (n=4) are without Complications.

Distribution of patients based on percentages of Factors for Complications: Among all the patients with Complications, patients with factor Forgot to take medication are 50% (n=14), Diet 14.2% (n=4), Restenosis 7.1% (n=2), Due to PTCA 7.1% (n=2), ADRs of drugs 7.1% (n=2), Cost 3.5% (n=1), Stress 3.5% (n=1), Unknown 3.5% (n=1), Recommended by physician 3.5% (n=1).

IV. DISCUSSION:

We collected a total of 137 cases of Percutaneous Transluminal Coronary Angioplasty (PTCA) patients with various Antiplatelet therapy like Aspirin, Clopidogrel and Ticagrelor. After coronary angioplasty, antiplatelet therapy is given in order to prevent restenosis. Based upon the condition of the patients, Antiplatelets are usually given in various regimens like single antiplatelet, dual antiplatelet and triple antiplatelet therapies. Most of the patients were given with Dual antiplatelet therapy i.e., 70.1% (n=96) to stabilise the patients. Single antiplatelet therapy is given to patients who are at less risk to restenosis. Triple antiplatelet therapy is given to limited patients i.e., who are at high risk to restenosis might be after few days of coronary angioplasty. Triple antiplatelet therapy is not

usually preferred because of side effects produced by antiplatelet drugs

Majority of patients with single antiplatelet therapy are given with Ticagrelor i.e., 50% (n=18) as it is extremely potent drug compared to other antiplatelet drugs like Aspirin, Clopidogrel etc.,. As Aspirin and Clopidogrel have same effect compared to Ticagrelor but Ticagrelor have high potency to reduce the risk of restenosis.

Compliance to Antiplatelet therapy in post coronary angioplasty is necessary to all PTCA patients. Most of the patients are compliant to Antiplatelet drugs i.e., 81.02% (n=111). Few patients lack compliance due to several factors (i.e., average income, irregular follow ups, forgot to take medications, low knowledge about drug use etc.,). Patients with triple antiplatelet therapy are highly compliant to the treatment.

Complications were most commonly seen in Dual Antiplatelet therapy i.e., 78.26% (n=36). Among dual antiplatelet therapy, most complications were observed in patients with Aspirin and Clopidogrel combination. Among single antiplatelet therapy, patients with treatment of Ticagrelor i.e., 44.4% (n=4) showed most complications due to its high potency (like bleeding disorders etc.,).

Complications with Ticagrelor therapy might be due to irregular administration of Ticagrelor drug, missing even a single dose of Ticagrelor leads to decrease in the action of Ticagrelor. Re-stenosis is the complication mostly caused due to irregular intake.

Several factors were led to complications, those include diet, restenosis, forgot medication, Adverse effects due to drugs, average income of patient, stress, physician recommendation, PTCA and some unknown factors. Among these factors, complications were mostly observed with forgot to

take medication i.e., 50% (n=14). Drug intolerance also observed in some patients.

Among patients who died were majorly due to irregular medication (forgot to take medication) i.e., 70% (n=7). Patients with CVS and CNS, were also due forgot to take medication i.e., 60% (n=10), 66.7% (n=2) respectively. GI complications were mostly observed due to diet and adverse effects of drugs. Dyspnoea was mostly observed due to diet. Other complications were due to diet, forgot to take medication etc.,

V. CONCLUSION:

Antiplatelet therapy in post PTCA has major impact in reducing further complications: Restenosis (again stent placement, severe symptoms like arm and chest pain .,) often leads to sudden Cardiac death.

Compliance to Antiplatelet therapy is very important to prevent complications. In this study, complications were occurred due to various factors.

A total of 137 patients were collected as a part of this study , out of which 81.02% patients were compliant to therapy. Death was the major complication that was led due to irregular administration of Antiplatelet therapy (i.e., non-compliant to treatment). Age also had on impact in recurrent attack to disease and led to PTCA. Among non-compliant patients we found death was the major complication.

Among Antiplatelet drugs (Aspirin, Clopidogrel, Ticagrelor), Ticagrelor had less complications rate, Aspirin and Clopidogrel combination has high complications rate. 50% of cases who were on Aspirin and Clopidogrel therapy were observed with complications.

We conclude that the complications in post coronary angioplasty were observed in age groups of 40-70 years. Among the complications, the main factor that affects is improper administration of medication. Compliance to treatment is necessary after coronary angioplasty. Ticagrelor is the best drug after coronary angioplasty as it has less complication rate compared to Aspirin and Clopidogrel. Ticagrelor has high potency to prevent complications.

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