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Prospective comparitive study between Ecospirin and Rivoraxaban in prevention of DVT in post TKR patients

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A B S T R A C T

Introduction: The risk of postoperative venous thromboembolism (VTE) is higher for patients having total knee arthroplasty (TKA) or total hip arthroplasty (THA).One of the main causes of post-operative morbidity and mortality is VTE, which includes both pulmonary embolism (PE) and deep vein thrombosis (DVT). Up to 40–60% of post-operative patients may develop DVT and 1-2 percent may die from PE, if proper prophylaxis is not take.According to current standards, prophylactic treatment should be administered for at least 10–14 days and should be seriously considered for up to 35 days

Objectives of study: To compare the effect of Ecospirin and Rivoroxan in prevention of DVT in post TKR patients

Materials and methods: Patient who underwent TKR in BGSGIMS during a period of 2 yrs (from December 2022 – December 2024) were given Ecospirin/ Rivaroxaban pre and post operativly were observed for the signs of DVT for a given period and compared the effects of both drugs during the period

Results: This is a hospital-based study. The trial duration was two years, from December 2022 to December 2024.The study comprised a total of 30 patients. Of these, 20 were females and 10 were males. Out of 30 patients no one developed VTE or PE . There was no significant difference in incidance of PE and VTE between ecospirin and rivoroxaban groups

Conclusion: In our study out of 30 patients 18 patients were given ecospirin and 12 were given rivoroxaban . Pre operatevly and post operatevily assesed using Knee society score. Effect of ecosipirin and rivoroxaban is analysed. There is no statistically difference in incidance of DVT and PE . The limitations of our study includes it is a hospital based study , only limited patients are assessed and it doesn't conclude the whole population

Keywords: Rivaroxaban, Ecosprin, DVT, VTE.

INTRODUCTION

The risk of postoperative venous thromboembolism (VTE) is higher for patients having total knee arthroplasty (TKA) or total hip arthroplasty (THA).One of the main causes of post-operative morbidity and mortality is VTE, which includes both pulmonary embolism (PE) and deep vein thrombosis (DVT). Up to 40–60% of post-operative patients may develop DVT and 1-2 percent may die from PE, if proper prophylaxis is not take[1,2].According to current standards, prophylactic treatment should be administered for at least 10–14 days and should be seriously considered for up to 35 days[3]

There are currently three known causes of thrombosis: irregular blood flow, faulty coagulation system, and arterial wall injury. More than half of Hospitalised patients globally are at risk for venous thromboembolism, according to

epidemiological research[4]. Direct oral anticoagulants such as rivaroxaban are currently the most often utilised clinical anticoagulants is a factor Xa blocker that prevents deep vein thrombosis safely and effectively by competitively inhibiting prothrombin activity and both free and bound factor Xa[5]. Its good anticoagulant action has led to its clinical use in numerous nations in recent years. Aspirin is a commonly accessible, affordable, and universal antiplatelet medication.It is still debatable whether aspirin should be used as a regular medication to prevent VTE following surgery, despite the fact that its effectiveness in preventing cardiovascular and cerebrovascular ischaemic disorders has been established[6,7]

Risk of VTE in post-TKA and post-THA patients has significantly decreased[5].With some speculating that any risk decrease from newer agents would be Counterbalanced by an increased risk of bleeding problems, this has altered the risk-benefit analysis for prophylactic medications.[7] As a result, there is now more interest in aspirin, a generic, low-cost anti-platelet medication. Although some earlier studies have assessed its efficacy, direct comparisons with more recent medicines in the contemporary clinical setting have only now started to surface [8,9].We performed a prospective comparitive study between Ecospirin and Rivoraxaban in prevention of DVT in post operative cases of Total Knee arthroplasty

OBJECTIVES OF STUDY

- To compare the effect of Ecospirin and Rivoroxan in prevention of DVT in post TKR patients

MATERIALS AND METHODS

Patient who underwent TKR in BGSGIMS during a period of 2 yrs (from December 2022 – December 2024) were given Ecospirin/ Rivaroxaban pre and post operativly were observed for the signs of DVT for a given period and compared the effects of both drugs during the period

Inclusion crieria

- Obese and non obese patients
- Post TKR patients
- Age greater than 50 years and less than 75 years

Exclusion criteria

- Age less than 50 years and more than 75 years
- Patient not taken ecospirin/ rivoroxaban pre and post operatevily

RESULTS

This is a hospital-based study. The trial duration was two years, from December 2022 to December 2024.The study comprised a total of 30 patients. Of these, 20 were females and 10 were males(fig : 1)(8 patients between 50 and 55 years of age ,6 patients between 56 and 60 years of age , 8 patients between 61 and 65 years of age, 6 patients between 66 and 70 years of age , 2 patients between 71 and 75 years of age)(fig : 2)(table :1) . Patients who underwent total knee arthroplasty were evaluated preoperatively and postoperatively using Knee society scoring system

Pre operatevily BMI was calculated (10 patients were healthy weight,8 were pre obese and 12 were obese)(fig: 3) . Out of 30 patients 17 patients were hypertensive and on medications and 4 patients were having diabetics and few patients had ischemic heart disease. Pre operatevily and post operatevily knee society score is calculated. Out of 30 patients 18 patients had an excellent outcome , 9 patients had good oucome and 3 had fair outcome (fig : 4) . There is no poor outcome post operatevily.

Out of 30 patients 18 patients have taken Ecospirin(1 week pre operatevily and 4 weeks post operatevily) and 12 patients have taken Rivoroxaban (3 days pre operatevily and 10 days post operatevily) . Ecospirin was administered 75 mg twice daily and Rivoroxaban was given 10 mg/day. Patient is assessed for the signs of DVT and PE post operatevily

Bleeding

In total 2 out of 30 patients experienced major bleeding (1 out of 18 patients taken ecospirin 1 out of 12 patients taken rivoroxaban) . The results showed there is no significant differences in major bleeding between Rivoroxaban and ecospirin . 10 out of 30 patients have minor bleeding . Results showed the incidance of minor bleeding is more in case of rivoroxaban compared with ecospirin

Out of 30 patients no one developed VTE or PE . There was no significant difference in incidance of PE and VTE between ecospirin and rivoroxaban group

Demographics	Patients on Ecosprin	Patients on rivaroxaban
Number of patients	18	12
Age	52-73	52-73
Sex Male Female	 7 11	 2 10
Associated disease HTN HTN AND ASTHMA OBESITY HTN AND OBESITY IHD IHD WITH HTN DIABETES MELLITUS DM WITH HTN COPD COPD WITH HTN NIL	 3 1 1 4 0 2 2 0 0 1 4	 0 0 4 3 0 2 1 1 0 0 1
TABLE 1		

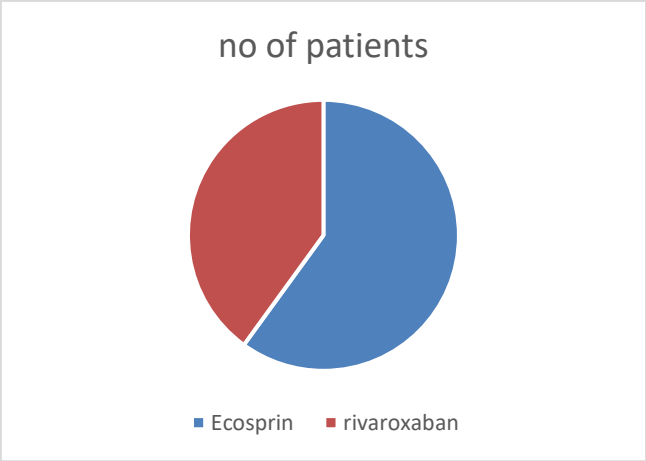

Fig: 5

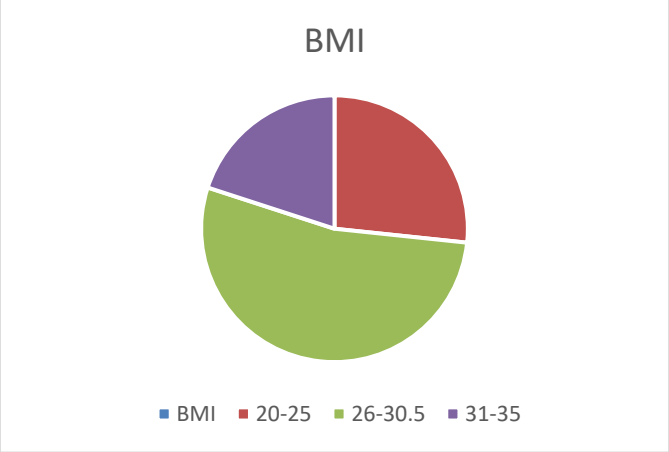

Fig : 3

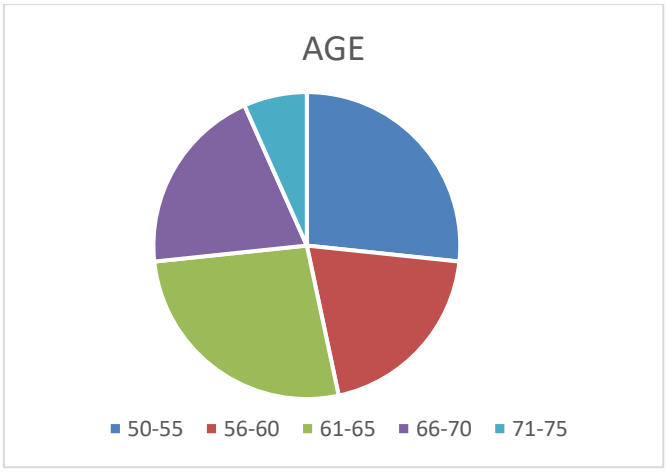

Fig: 2

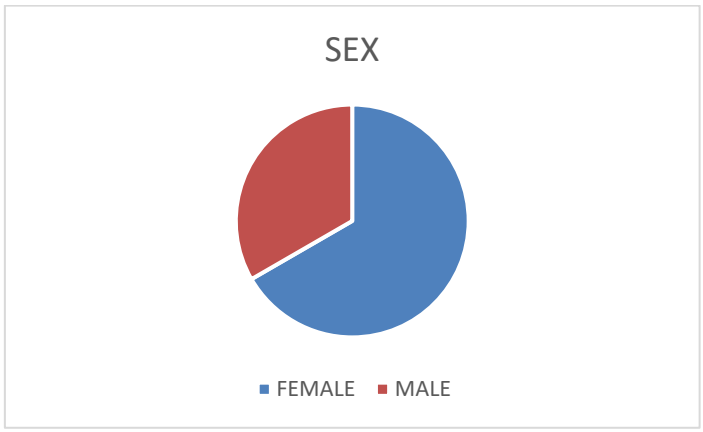

Fig : 1

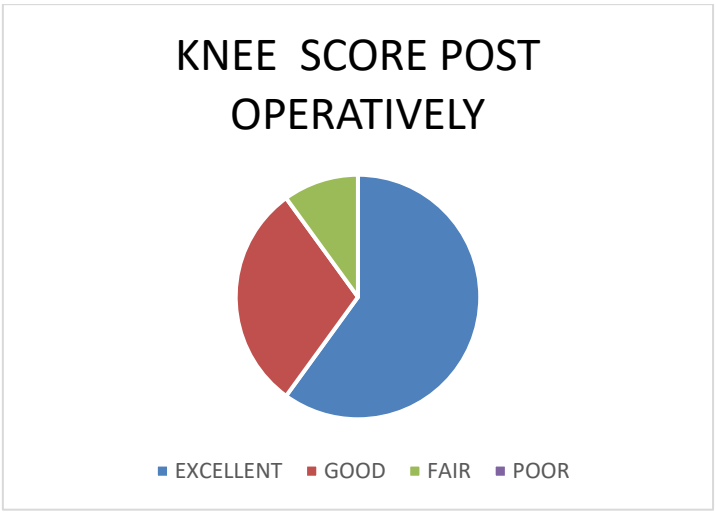

Fig : 4

DISCUSSION

We evaluated the efficacy of rivaroxaban versus ecosporin in prevention of VTE following total joint arthroplasty.The results demonstrated that there were no statistical difference between rivaroxaban and aspirin in prevention of VTE and the reduction of major bleeding . However, rivaroxaban had some negative side effects to patients such as non major bleeding.

Complications from VTE involve a lot of medical resources, and it is the leading cause of perioperative hospitalisation deaths [4,11]. It has been demonstrated that anticoagulant It has been demonstrated that anticoagulant medications lower the postoperative mortality and complications linked to VTE [10].Aspirin might be a reasonable option for thromboprophylaxis following total hip or total knee arthroplasty or hip fracture surgery due to its effectiveness, affordability, and well-established side-effect profile [7].Rivaroxaban is the first oral factor Xa inhibitor ever created. Along with preventing stroke or systemic embolism in atrial fibrillation, it is used to treat and prevent venous thromboembolism[12] .Its benefits include quick action, ease of administration, and less chance of medication interactions. In recent years, there have been more and more studies on rivaroxaban in perioperative anticoagulation, especially in prevention of VTE .

Rivaroxaban's use in perioperative anticoagulation, particularly in preventing VTE in patients with lower limb fractures, has been the subject of an increasing number of studies in recent years.There appears to be uncertainty about the use of oral anticoagulants, such as rivaroxaban, during the perioperative phase. Though there are currently no direct oral anticoagulant comparisons, clinical trials have indicated that aspirin may be useful in preventing Though there are currently no direct oral anticoagulant comparisons, clinical trials have indicated that aspirin may be useful in preventing venous thromboembolism after surgery. To boost the power of these results, we combined the patient To boost the power of these results, we combined the patient cohort from eight other research. Furthermore, we aim to present more impartial proof for VTE prevention.

It has advantages of convenient administration, rapid action, and low risk of drug interaction. In recent years, there have been more and more studies on rivaroxaban in perioperative anticoagulation, especially in prevention of VTE in patients with lower limb fractures. The use of oral anticoagulants in the perioperative period, represented by rivaroxaban, seems to be in doubt. To date, clinical trials have suggested that aspirin may be effective for prevention of venous thromboembolism postoperatively, but comparisons with direct oral anticoagulants are lacking.

When it comes to secondary prevention of VTE, the recent study by Weitz et al. [12]that compares the safety and effectiveness of rivaroxaban (10 mg/day and 20 mg/day) with aspirin shows that the anticoagulant is completely superior In lowering the incidence of thromboembolic events without increasing bleeding. Furthermore, a recent meta-analysis has demonstrated that rivaroxaban is beneficial for prevention[13] Patients who received aspirin and rivaroxaban following surgery were included in our study. The perioperative phase is known to be a patients who received aspirin and rivaroxaban following surgery were included in our study. The perioperative phase is known to be a critical time with a significant risk of both bleeding in the operation zone and a VTE event.In addition, other recent studies have shown that aspirin did not differ statistically significantly from other anticoagulants used for VTE prophylaxis after THA and TKR [14,15,16]These studies support our conclusion.

In our study out of 30 patients 18 patients were given ecospirin and 12 were given rivoroxaban . Pre operatevly and post operatevily assesed using Knee society score . Effect of ecosipirin and rivoroxaban is analysed . There is no statistically difference in incidance of DVT and PE . The limitations of our study includes it is a hospital based study , only limited patients are assessed and it doesn't conclude the whole population

CONCLUSION

In our study out of 30 patients 18 patients were given ecospirin and 12 were given rivoroxaban . Pre operatevly and post operatevily assesed using Knee society score . Effect of ecosipirin and rivoroxaban is analysed . There is no statistically difference in incidance of DVT and PE . The limitations of our study includes it is a hospital based study , only limited patients are assessed and it doesn't conclude the whole population

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