ORIGINAL RESEARCH

Dabigatran in the management of deep venous thrombosis of the lower limbs

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ABSTRACT

Introduction: Venous thromboembolism (VTE) is a major cause of morbidity and mortality, and individuals with a first episode of VTE are at risk of recurrent VTE. Vitamin K antagonists have been the mainstay in the treatment of VTE after an initial course of parenteral anticoagulation.Dabigatran etexilate is an orally administered direct thrombin inhibitor used in the treatment and secondary prevention of VTE and with a reduced risk for major and clinically relevant nonmajor bleeding.

Materials and methods: A total of 29 patients diagnosed as DVT of the lower limb admitted from April 1, 2016 to March 31, 2019 in the Department of Surgery, Regional Institute of Medical Sciences, Imphal, India were studied.

Inclusion criteria: All patients objectively diagnosed as DVT of lower limbs by Doppler ultrasonography and followed up for at least six months.

Exclusion criteria: All patients objectively diagnosed as DVT of lower limbs by Doppler ultrasonography and followed up for less than three months. All patients with duration of symptoms longer than 14 days were excluded.

All patients were given low molecular weight heparin for 5 days initially at the time of diagnosis followed by Tab. Dabigatran 110 mg 12 hourly for a minimum of three months.

Results: A total of 29 patients of DVT of lower limbs were studied, and majority of the patients were in the age group of 46 – 88 years. After 1 year of follow up while still on Dabigatran 110 mg twice daily 9 patients (31%) had normal limb size as compared to the unaffected limb. Whereas 37% of patients are asymptomatic except slightly increased limb size.

Conclusion: Dabigatran and other non–vitamin K oral anticoagulants are occasionally used off-label in patients with DVT. Dabigatran is noninferior to warfarin for the prevention of recurrent VTE. The risk for clinically relevant bleeding or any bleeding is significantly lower with Dabigatran.

INTRODUCTION

Deep venous thrombosis (DVT) or pulmonary embolism (PE), venous thromboembolism (VTE), remain an important preventable sources of morbidity and mortality despite increased awareness and use of prophylaxis. DVT occurs most commonly in the lower extremities. The incidence of VTE is approximately 100 per 100,000 people per year in the general population, with 20% of the diagnoses made within 3 months of a surgical procedure. Of the symptomatic patients, one-third will present with PE and two-thirds with DVT.[1] There are different treatment modalities according to the etiology of the disease and anticoagulation is the mainstay of the treatment. Apart from warfarin and heparin there are newer anticoagulants available and dabigatran is one of them. Dabigatran is a direct oral anticoagulant (DOAC) inhibiting thrombin, which have characteristics that may be favorable compared to conventional treatment, including oral administration, a predictable effect, lack of frequent monitoring or dose adjustment and few known drug interactions.

MATERIAL & METHODS

This is a prospective observational study from April 1, 2016 to March 31, 2019 at the Department of Surgery, Regional Institute of Medical Sciences, Imphal. A total of 29 patients diagnosed as DVT of the lower limb admitted in the Department of Surgery, Regional Institute of Medical Sciences, Imphal, India were studied.

Inclusion criteria: All patients objectively diagnosed as DVT of lower limbs by Doppler ultrasonography and followed up for at least six months.
Exclusion criteria: All patients objectively diagnosed as DVT of lower limbs by Doppler ultrasonography and followed up for less than three months. All patients with duration of symptoms longer than 14 days were excluded.
All the patients, at the time of diagnosis, were given low molecular weight heparin for 5 days followed by Tab. Dabigatran 110 mg 12 hourly for a minimum of three months. In all patients complete blood count, liver function test, kidney function test, prothrombin time and INR were done.

RESULTS

During the study period a total of 29 patients of DVT of lower limbs were studied, and majority of the patients were in the age group of 46 – 88 years.

Table: 1. Distribution of DVT according to age and sex (n=29)

Age (years)	Male		Female		Total	
	No.	%	No.	%	No.	%
25 – 45	7	38.88	2	18.18	9	31.03
46 – 66	8	44.44	7	63.63	15	51.72
67 – 86	3	16.66	2	18.18	5	17.24
Total	18	100	11	100	29	100

Table 2. Status of the limbs at presentation

Clinical features	No. of patients (n=29)
Swelling	29
Redness	16
Pain	19
tenderness	19
Firm consistency of limbs	29

Table: 3. Status of limbs after 6 months of standard treatment

Parameters	Status of limbs	No. of patients (n=29)
Swelling	Reduced	29*
Redness	Reduced	29
Pain	Subsided	16
Tenderness	Subsided	19
Firm consistency of limbs	Subsided	29

In all the patients swelling of the limbs has been reduced but none of the limb were completely normal in size as compared to the normal limb of each patient.
The pain, tenderness and firmness of the swelling were completely absent in 4 patients (13.60%) after 6 months of treatment with tablet Dabigatran.
After 1 year of follow up while still on Dabigatran 110 mg twice daily 9 patients (31%) had normal limb size as compared to the unaffected limb. Whereas 37% of patients are asymptomatic except slightly increased limb size; they were all advised to continue Dabigatran and compression stocking.

DISCUSSION

Deep vein thrombosis may be due to damage to the endothelial layer of the vessel, stasis of blood flow and hypercoagulabilty, as alluded to in Virchow's triad. Timely detection and treatment of DVT is of utmost importance as it may lead to pulmonary embolism which is a life threatening condition. Between 2.5% and 5% of the population is affected by DVT at some point in their lives.[1] Within two years of DVT occurrence, over 50% patients develop post thrombotic syndrome (PTS), manifested by leg pain, swelling, skin pigmentation, or venous ulceration, despite the use of anticoagulation treatment[2-5]. Therefore, adequate and timely treatment of DVT is a must. It is well established that most acute cases of PE is associated with proximal DVT. The reported mortality rate of proximal DVT is higher than that of distal DVT[6-9].

CONCLUSION

Dabigatran and other non–vitamin K oral anticoagulants are occasionally used off-label in patients with DVT. Small case series have been published that found promising safety and efficacy results,[10-12] but these studies lacked controls and randomization. Dabigatran is noninferior to warfarin for the prevention of recurrent VTE. The risk for clinically relevant bleeding or any bleeding is significantly lower with Dabigatran.

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