Enoxaparin Sodium Biosimilar in the Prophylactic Treatment of Veinous Thromboembolism and Thromboembolic Disease: Prophyvar Study

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BACKGROUND

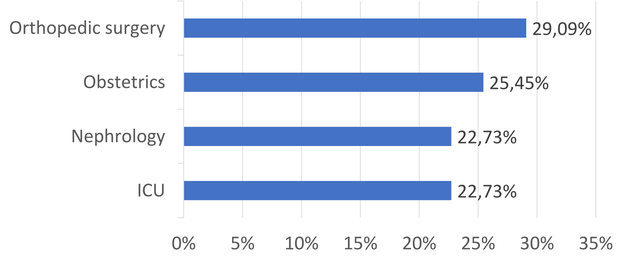
In Algeria, venous thromboembolism (VTE), whose most important clinical manifestations are deep vein thrombosis (DVT) and pulmonary embolism (PE), represents a major public health problem because of its impact on morbidity and mortality and the burden of the disease on the health system[1,2].

Varenox® is the first locally manufactured and approved biosimilar in Algeria. It is an enoxaparin sodium (ES) with established good analytical characterization and manufacturing quality control. The aim of the PROPHYVAR study was to generate real-life data in routine practices and to assess the safety and tolerability of Varenox® in the prophylaxis of VTE.

PATIENTS AND METHODS

This observational, prospective, multicenter study was conducted between April 2021 and May 2022 in 25 different sites in Algeria covering 4 therapeutic areas: ICU, orthopedic surgery, obstetrics and nephrology; (Figure 1).

Figure 1. Inclusion according therapeutic areas



The primary safety outcome was the incidence of Adverse Events (AEs) related to the study drug. A sample size of 500 patients was calculated to accurately estimate the proportion of patients with AEs.

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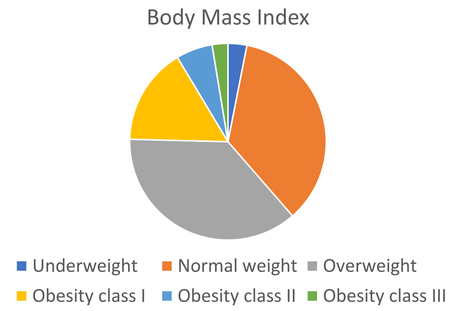
RESULTS

A total of 550 patients were included and received at least one injection of Varenox®. The mean age was 47 years, women in majority (62.5%). The patients were overweight or obese (class I) for 53% of them, with a history of arterial hypertension (25%), diabetes (7.5%) and renal failure (6.4%). (Figure 2)

Figure 2. Patients' distribution by BMI class



Reasons for hospitalization were mainly fracture (15.5%), pregnancy (8.3%), COVID-19 (7%) or cancer (7%).

- Safety Evaluation

A total of 38 patients (6.9%) experienced at least one AE (CI95=[4.9%;9.4%]). Related AEs were reported in 10 patients (1.8%), mainly in nephrology (N=7 arterio-venous fistula). (Table 1).

Table 1. Summary of AE

Adverse Events (AE)	Number of AEs	Number of patients (% total population)
All AEs	45	38 (6.9%)
All related AEs	11	10 (1.8%)
All serious AE (SAE)	25	22 (4%)
- SAE (except death)	8	7 (1.5%)
- Death	17	17 (3.1%)
All related SAE	1	1 (0.18%)

VTE which consists of pulmonary embolism, superficial vein thrombosis and deep venous thrombosis were reported in a total of 6 patients (1.1%) - CI95=[0.2%; 2%] - (Table 2).

Table 2. Summary of VTE events

VTE events	Number of AEs	Number of patients (% total population)
Pulmonary embolism	4	4 (0.72 %)
Superficial vein thrombosis	1	1 (0.18 %)
Deep vein thrombosis	1	1 (0.18 %)
TOTAL	6	6 (1.09 %)

In this study, most patients were treated at prophylactic dose of 0.4ml (80%) or 0.6ml (10%). The average duration of treatment and follow-up were 23 and 24 days, respectively.

DISCUSSION

The efficacy and safety of Low-Molecular-Weight Heparins (LMWH), enoxaparin sodium, have been well documented for the prevention of venous thromboembolism. Biosimilars are clinically and biologically similar to the original (reference) product. They are approved for the same indications and at the same doses. This study highlighted the good safety profile of Varenox® in routine practice, with a very low incidence of related AEs (less than 2%) and a rate of VTE of 1.1%, observed essentially in a heterogeneous population, characterized by the presence of comorbidities and risk factors. No deaths have been reported as being related to treatment.

Conclusion and Perspectives

This study suggests that Varenox® is safe in the prophylaxis of VTE. To our knowledge this is the first large study describing the use of ES in current medical practice in Algeria.

References:

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