



Regular Article

Thromboprophylaxis use and concordance with guidelines among medical and surgical patients in Morocco



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ABSTRACT

Introduction: No data are available on thromboprophylaxis use in Morocco. Our aim was to characterize patients at risk of venous thromboembolism and assess the rate of appropriate thromboprophylaxis.

Materials and Methods: This was a national, observational, multicentre survey of venous thromboembolism risk and thromboprophylaxis use in hospitalized patients. Data were collected on a predefined date in three university hospitals in Morocco using a standardized pre-printed form. Thromboembolic risk was assessed according to the American College of Chest Physicians (ACCP) 2008 guidelines. Patients were classified as “thromboprophylaxis indicated” or “thromboprophylaxis not indicated”.

Results: 784 patients were analysed: 307 (39.2%) medical and 477 (60.8%) surgical. 421 (53.7%) were female. Medical patients were older than surgical patients (57.6 ± 11.5 vs. 46.2 ± 16.9 years, $p < 0.0001$) and were more likely to have risk factors for thromboembolism (50.5% vs. 45.7% of patients, $p = \text{NS}$). 57% of patients without contraindications or bleeding risk were at risk of thromboembolism according to ACCP guidelines and thromboprophylaxis was prescribed to 42.8% of these patients. In contrast, 7.4% of patients with no thromboembolic risk also received thromboprophylaxis (proportion agreement: 61.0%; Kappa = 0.296). Over half (54.5%) of medical patients at risk of thromboembolism did not receive thromboprophylaxis whereas 6.3% of those with no risk did receive it (proportion agreement: 76.4%; Kappa = 0.433). These figures were 57.9% and 9.2%, respectively, for surgical patients (proportion agreement: 52.7%; Kappa = 0.191). Thromboprophylaxis was given to 19.2% of patients with contraindications or a bleeding risk.

Conclusions: Educational initiatives are imperative to inform doctors about appropriate thromboprophylaxis.

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Introduction

Pulmonary embolism (PE) is the most common preventable cause of hospital-related mortality. Post-mortem studies indicate that PE is responsible for approximately 10% of deaths among hospitalized patients [1]. Recent hospitalization accounts for more than one-third of all cases of venous thromboembolism (VTE) diagnosed [2].

Clinical trials have demonstrated the efficacy of anticoagulants in reducing the incidence of VTE in hospitalized patients [3] and heparin

has been shown to reduce the risk of PE in both surgical and medical patients by 50% or more [4,5]. This strategy is efficient and cost-effective [4], although safety issues relating to an increased risk of bleeding have been reported in some patient groups [5]. Many guidelines for the use of thromboprophylaxis (TP) have been published and, based on systematic reviews of the literature, the American College of Chest Physicians (ACCP) update their guidelines every 3 years to provide specific TP recommendations for at-risk patients [6].

Data from a multinational, cross-sectional survey in the acute hospital care setting indicate that less than 50% of at-risk inpatients receive any TP and highlight the large inter-country variation in TP administration, ranging from 2% in some underdeveloped countries to 84% in Europe [7,8]. These authors emphasized the low rate of appropriate TP despite the high proportion of hospitalized patients at risk of VTE.

Few data are available on TP use in North African countries and none from Morocco. Our aim was to carry out a multicentre chart audit of TP

Abbreviations: ACCP, American College of Chest Physicians; LMWH, low molecular weight heparin; PE, pulmonary embolism; TP, thromboprophylaxis; VTE, venous thromboembolism.

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on a predefined date in a group of Moroccan hospitals. The primary objectives were to describe the characteristics of hospitalized patients at risk of VTE and to assess the rate of appropriate TP use according to the 8th consensus guidelines of the ACCP.

Materials and Methods

Study Design and Population

This was a national, observational, multicentre, open, cross-sectional study of the prevalence of VTE risk and TP use in hospitalized patients. Data were available from three out of the five university hospitals in Morocco.

Inclusion criteria were, for medical patients: age ≥ 40 -years; hospitalization for >24 h for medical reasons; and, for surgical patients: age ≥ 18 -years and surgery requiring general or epidural anaesthesia lasting ≥ 45 min. Exclusion criteria were: age <18 -years for surgical patients or <40 -years for medical patients; duration of hospitalization <24 h; receiving therapeutic doses of antithrombotics for any indication; patients with known VTE or PE; and patients with missing hospital charts. Patients in the following hospital services were also excluded: psychiatry; paediatrics; palliative care; neonatology; burns; ear, nose and throat; ophthalmology; alcohol/drug addiction; physiotherapy. All participants gave their signed informed consent in either French or Arabic.

The study protocol did not involve any modifications to usual patient care. The study was approved by the Institutional Review Boards of each hospital.

Data Collection

On a predefined date, data were collected from the medical charts of hospitalized patients who were eligible for inclusion using a standardized pre-printed case-report form. The following data were recorded: demographic characteristics; date of admission; principal admission diagnosis; active comorbidities; type of surgical procedure carried out or major medical pathology present at admission or during the first 14 days of hospitalization; risk factors for VTE; and details of VTE prophylaxis (type, dose, time of initiation and, when possible, duration).

Patients were considered to be at risk of VTE according to the 2008 ACCP guidelines. Patients were classified as “TP indicated” or “TP not indicated”. The presence of contraindications for TP and of potential risk factors for bleeding was also noted (bleeding disorders, haemorrhagic stroke, thrombocytopenia, bacterial endocarditis, active gastrointestinal bleed, advanced hepatic and renal failure).

Primary Objective

The main objective was to identify the population at risk of VTE. The main end-point was the proportion of patients at risk of VTE receiving appropriate prophylaxis according to ACCP guidelines.

Statistical Analysis

Quantitative variables are summarized as mean \pm standard deviation and qualitative variables as percentages. The level of concordance (Kappa coefficient) between reported practices and 2008 ACCP recommendations was calculated for the whole population and for medical and surgical patients separately. For all statistical tests, $p < 0.05$ was considered to be statistically significant. All statistical analyses were performed using SPSS version 17.0.

Results

Study Population

A total of 788 patients were included in the study from three university hospitals (Rabat: 468 patients, Fez: 185 patients and Marrakech: 135 patients): 477 patients (60.5%) were from surgical units and 311 (39.5%) from medical wards. Four medical patients were excluded from the analysis as they were <40 -years of age; thus, 784 patients were included in the final analysis (307 medical and 477 surgical).

Mean age of the patients was 50.6 ± 16.0 years; 53.7% were female, 52.2% were ≥ 50 -years and 29.9% were >60 -years. Medical patients were significantly older than surgical patients (57.6 ± 11.5 vs. 46.2 ± 16.9 years, $p < 0.0001$). The main causes of hospitalization among medical patients were cancer (12.7%) and neurological diseases including ischemic stroke (12.6%), followed by rheumatological/inflammatory disease (11.9%) and cardiovascular disease including heart failure (Table 1). The main causes of hospitalization among surgical patients were gynaecological/obstetric surgery (19.9%), followed by abdominal surgery (18.2%) (Table 2). More than one-third of surgical patients (34.6%) spent 1 or 2 days in hospital before surgery and 16% spent ≥ 14 days in hospital before surgery.

Venous Thromboembolism Risk

Nearly one-half of patients (47.4%) had a least one risk factor for VTE; 33.8% had a single risk factor and 10.5% had two risk factors. Medical patients were more likely to have risk factors than surgical patients (50.2% vs. 45.7% had ≥ 1 risk factor, respectively, $p = \text{NS}$). The most prevalent risk factors for VTE were active cancer (17.3%) followed by obesity in 11.1% and prolonged immobilization in 5.4% (Table 3). At the time of hospitalization, 11.6% of patients had complete immobilization and 15.8% were completely immobile during hospitalization, with no difference between medical and surgical patients.

Thromboprophylaxis

Contraindications

The majority of patients (746/775; 96.3%) had no contraindications for TP. Among the 29 patients (3.7%) with contraindications for TP, the most common risk factor was active gastrointestinal bleeding (2.2%). The rate of contraindications for TP was higher in medical patients than in surgical patients (7.2 vs. 1.5%, respectively, $p < 0.0001$).

Risk factors for bleeding during hospitalization were also more frequent among medical than surgical patients (16.3% vs. 3.6% respectively; $p < 0.0001$). Renal failure was the most common factor: 4.1% overall (9.3% of medical and 0.8% of surgical patients).

Table 1

Main causes of hospitalization among medical patients.

Medical cause of hospitalization*	Number of patients (n = 297)	%
Cancer	38	12.2
Neurological/ischemic stroke	38	12.6
Rheumatological or inflammatory	37	11.9
Cardiovascular disease/heart failure	29	9.4
Gastrointestinal/hepatobiliary	24	7.7
Endocrine/diabetes	21	6.8
Renal disease	17	5.5
Infectious disease	15	4.8
Acute respiratory disease	12	3.9
Haematological disease	10	3.2
Association of different causes	9	3.0
Other medical problem	34	10.9

* Cause was not specified for 10 medical patients.

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