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Original Article

Thromboprophylaxis for ambulatory surgery: Results from a prospective national cohort

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ABSTRACT

Background: Venous thromboembolism (VTE) prophylaxis is not always part of the usual care of ambulatory surgery patients, and few guidelines are available.
Objectives: To collect data on the application of VTE prophylaxis in ambulatory patients.
Design: The OPERA study is a large national survey performed in 221 healthcare facilities.
Patients: Among patients, 2174 who underwent one of ten selected procedures over two pre-defined days of investigation.
Main outcome measures: Assessment and management of the postoperative VTE risk.
Results: The postoperative VTE risk was assessed as nil (4.1% of the physicians), low (74%) or moderate (20%). This risk was assessed as lower (71%) in ambulatory surgery as compared to conventional surgery. In most centres (94%), a personal patient history of VTE was recorded preoperatively, and in 72% a prophylaxis protocol was systematically applied but only 40% of the responding centres had a written protocol for VTE prophylaxis. The postoperative period (discharge at home) was covered by a VTE protocol for 75% of the centres, with VTE prophylaxis starting postoperatively in 21% of the patients. In these patients, different treatments were applied: below-knee compression stockings (25%); thigh-length compression stockings (21%); intermittent pneumatic compression in the recovery room (1.2%); unfractionated heparin (2.0%); low molecular weight heparins (65%); vitamin K antagonists (0.5%); other treatments, including direct oral anticoagulants (0.5%).
Conclusion: These data underline the need for a better assessment of the VTE risk in ambulatory patients and new studies either with conventional or new agents to be able to build guidelines in this new setting.

1. Introduction

In recent years, ambulatory surgery has seen a dramatic increase in the number of patients treated through this process of care. Reasons have long been debated, but the concept itself is not anymore discussed as it mobilises less healthcare resources and is associated with good postoperative patient-centred outcomes [1,2]. Despite differences in definitions and economic healthcare models in various countries, the ratio of patients cared in ambulatory conditions in France remains inferior to what is seen in other developed countries (OECD/EU (2016), *Health at a Glance: Europe 2016–State of Health in the EU Cycle*, OECD Publishing, Paris. https://doi.org/10.1787/9789264265592-en). This country is thus trying to mobilise all healthcare resources to reach a higher proportion of ambulatory surgery. At the professional level also, practice patterns are in need for evaluation and change. This is not only true because of the changes in the profile of patients admitted in ambulatory facilities, with more complex procedures and patients with more complex underlying diseases [3], but also in

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more traditional ambulatory conditions for which it is suggested that protocols are not always available and/or very well applied. The issue of venous thromboembolism (VTE) is a typical question for which an analysis would be valuable because patients treated in ambulatory facilities were up to now low risk patients for whom minor types of surgery were performed [4–6]. Thus, VTE risk and need for prophylaxis was generally said to be low, which would not justify any form of VTE prophylaxis in most patients. However, in some other patients, including several traditionally accepted indications, a need for prophylactic treatment may be recommended [6]. In addition, new procedures with a higher intrinsic VTE risk are now performed in ambulatory settings. The large OPERA study was designed to characterise French practice patterns in ambulatory surgery [7]. The section on VTE prophylaxis is presented in this manuscript. It aimed to assess how French anaesthetists evaluate the VTE risk and which clinical strategies are applied in ambulatory patients. The study was limited to usual indications of ambulatory surgery to avoid confusion, which would appear in more complex surgical conditions, in which indications might be less well delimited.

2. Methods

The methods and design of the OPERA study have been built by a dedicated group of experts from the French Society of Anaesthesia and Intensive Care Medicine (SFAR). They have been described elsewhere. Briefly, the OPERA study was a national, observational, prospective survey carried out between December 2013 and December 2014, in French healthcare institutions with ambulatory facilities, which had been randomly selected and had accepted to participate. Each participating centre was required to fill out 3 separate questionnaires aiming at describing:

- facility's structure and organisation;
- patients' characteristics and procedures;
- anaesthetic practice patterns for selected procedures: a detailed description of perioperative management of patients undergoing one out of the 10 procedures (third molar removal, knee arthroscopy, surgery of the abdominal wall [including inguinal hernia], perianal surgery, varicose vein surgery, laparoscopic cholecystectomy, breast tumorectomy, minor uterine surgery, hallux valgus, hand surgery [excluding carpal tunnel]).

These procedures represented the 10 most commonly performed ambulatory procedures at that time in France. We had to limit the extent of the survey to procedures performed in most of the centres with a supposed similar approach regarding postoperative nausea and vomiting, pain and venous thromboembolism prophylaxis. It is noteworthy to know that all these procedures were belonging to a low VTE risk group.

The last two parts of the survey were planned to record data during a two-day period after random selection built by the investigation centre. Pain, prevention of nausea and vomiting, and venous thromboembolism prophylaxis were separately assessed.

Study coordination was carried out by the Clinical Investigation Centre at the Grenoble University Hospital. Approvals by (1) the Clinical Investigation Centre Ethics Committee for the Rhône-Alpes Auvergne region, (2) the Advisory Committee on Information Processing during Research in the field of Health (French National Committee) and (3) the National Commission on Computing and Liberties (France) were obtained on February 25th 2013, April 18th 2013, and 20 December 20th 2013, respectively. The study was also declared on www.clinicaltrials.gov (NCT02380430). An information letter was provided by participating centres to all included patients.

Statistical analyses were performed using STATA version 13 (Statacorp LP, 4905 Lakeway Drive, College Station, Texas 77845 USA). The aim of the study was to give an overview of practices used in ambulatory surgery in France. One of the described fields was the prevention of VTE and which clinical strategies were applied in ambulatory patients. Therefore, no sample size calculation was done. No primary and secondary outcomes were specified in the research protocol. The statistical analysis was exclusively descriptive. Numbers and percentages were given for qualitative variables and median and interquartile range for quantitative ones. Data are presented in percentage, with 2 significant digits. Results for structure and organisation questionnaire were given by each establishment and for the participating centres as a whole. Results for patient characteristics and procedures were given by each establishment or by each procedure, and for the participating centres or included patients as a whole. No statistical tests were performed to compare establishments or procedures.

3. Results

3.1. Centre selection

A primary list of healthcare institutions with an outpatient unit was prepared by the SFAR ambulatory group based on data obtained via Regional Health Agencies. Three hundred centres were randomly chosen from an updated version of the latter list (891 healthcare institutions), with stratification according to the type of healthcare management (general, university teaching, private, non-profit private (of public interest) hospital) and region. An additional list of 71 centres was also selected, to be added in case of participation refusal or lack of response. After this first recruitment campaign, a second list of 114 centres accompanied by a supplementary list of 18 centres was randomly selected from the residual list. Spontaneous applications were accepted (15 centres) and 43 university hospitals were directly contacted. A total of 561 centres were contacted and 221 hospitals actually completed the survey, among which 206 participated in the structure section. The practice survey was thus carried out between June 17th and July 5th, 2014 and between November 17th and December 1st, 2014.

Over the two days of investigation, 7382 patients were included. Among these patients, 2174 patients underwent one of 10 selected procedures (Fig. 1).

No replacement of missing data was done. Some centres did not fill out all the sections of the questionnaires, which explains why the denominator varies in the different tables (e.g. VTE prophylaxis section of structure questionnaire was filled out by 196 of the 206 centres participating in the structure part of OPERA study). Percentages were calculated according to denominator in table. Missing answer to yes/no questions were interpreted as « no » if section was filled out.

3.2. Survey on thromboprophylaxis

Ninety five percent ($n = 196$) of selected centres ($n = 206$) responded to the thromboprophylaxis survey. In most cases, the postoperative VTE risk was assessed as nil (4.1%) or low (74%) (Table 1). Only 19.9% of responding physicians advocated for a moderate risk level. In addition, this risk was assessed as lower (71%) in ambulatory surgery as compared to conventional surgery. Among responders, 28% estimated that both ambulatory and conventional surgical settings were associated with the same level of risk.

In most centres (94%), a personal patient history of VTE was recorded preoperatively, and in 72% a prophylaxis protocol was

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