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Original article

French prospective multicenter comparative assessment of ambulatory surgery feasibility in anterior cruciate ligament reconstruction

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ABSTRACT

Introduction: The main objective of this multicenter study was to assess the feasibility of ambulatory surgery in France in anterior cruciate ligament (ACL) reconstructions for any technique or graft used (hamstring, patellar tendon, fascia lata). We hypothesized that a dedicated organization would guarantee the patient's safety.

Patients and methods: A multicenter, non-randomized, prospective, comparative study, conducted within the SFA symposium was conducted between January 2014 and March 2015, included all the patients operated on for arthroscopic ACL reconstruction using different surgical techniques. The outpatient group (OP) included patients eligible for day surgery who provided informed consent; the conventional hospitalization group (CH) comprised patients declined for outpatient surgery for organizational reasons. The main outcome was failure of the admission mode defined by hospitalization of a patient undergoing outpatient surgery or rehospitalization within the 1st week after discharge. The secondary outcomes were assessment of pain and postoperative complications. A total of 1076 patients were studied with 680 in the OP group and 396 in the CH group. The mean age was 30 years ± 9 years. In the CH group, the mean hospital stay was 2.7 ± 0.8 days.

Results: Twenty-three OP patients were hospitalized or rehospitalized (3.4%). Thirty-six (5.2%) early postoperative complications were noted in the OP group and 17 (4.3%) in the CH group (non-significant difference). Mean postoperative pain on D0–D4 and satisfaction were comparable between the two groups.

Conclusion: This prospective multicenter study observed no serious incidents. In a selected population, the risks are comparable to those of conventional hospitalization. Outpatient ACL surgery is therefore feasible in France in 2016.

Level of proof: III: case–control study.

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1. Introduction

In France, outpatient surgery has been developing rapidly since 2012, although France was considerably behind other Western countries in this respect. In 2009, 83% of surgical interventions in the United States, 79% in Great Britain, and 70% in Northern European countries were performed in an outpatient setting versus only 36% in France [1].

Between 2009 and 2012, orthopaedic outpatient surgery grew little: approximately +3% per year. The proportion of outpatient arthroscopic knee surgery was 72%, but less than 1% for knee ligament reconstruction [2]. In 2012, 41,122 anterior cruciate ligament (ACL) reconstructions were performed in France [3]. The median hospital stay for this condition (coded GHM:08C34) was 3–5.5 days (D) depending on the level of severity. The rate of outpatient ACL reconstruction in 2013 was only 3% [4].

Three limiting factors could explain this difference compared to other Western countries.

1.1. The economic factor

The lower tariff limit mechanism was counterproductive for the development of outpatient surgery. In 2012, the price set for this procedure, coded GHM:08C34, was 746 euros for the outpatient code, whereas it was 1639 euros for the "minimum 2 days hospitalization" code for American Society of Anesthesiologists (ASA) level 1 or 2 patients operated on for a simple ligament reconstruction [5] (statistics from private institutions).

1.2. The psychological factor

Changing from classical surgery to outpatient surgery for ACL reconstruction was difficult for surgeons and paramedical staff as well as patients [6,7].

1.3. The scientific factor

There were no French studies that had validated the feasibility of ACL reconstruction in outpatient surgery. The first study in 2013 had shown the possibility of a short hospital stay (one night), but this was not true outpatient treatment [8]. It should be remembered that outpatient surgery, according to the public health code, is an alternative to hospitalization, allowing the patient to be discharged on the same day as his or her admission, with identical surgery [9]. The benefits expected concern: patients in terms of satisfaction and more limited exposure to nosocomial infections [1,10], healthcare institutions because they can optimize their technical platforms, and the national health insurance system because costs are directly reduced from −25% to −68% [11,12].

The main objective of this study was to assess the feasibility of outpatient surgery in ACL reconstructions on a wider, multicenter population with different ligament reconstruction techniques. The main hypothesis postulated that for any surgical technique used, if dedicated outpatient organization is available, starting with the patient's intention to undergo surgery up to early postoperative follow-up, the patient's safety would be guaranteed. The secondary objective was to assess pain and postoperative complications.

2. Material and methods

A multicenter, non-randomized, prospective, comparative study was conducted between January 2014 and March 2015 (ten centers). Informed consent was collected from the patients and the database was declared with the National Commission on Informatics and Liberty (CNIL).

Table 1
ACL surgical techniques in the OP and CH groups.

	OP group	CH group	*P*
CL	272	158	NS
AI	293	150	NS
MacFL	88	25	NS
BTB	27	63	< 0.05

CL: classical procedures; AI: all-inside procedures; MacFL: Mac Intosh procedures; BTB: bone patellar tendon bone; OP: outpatient; CH: conventional hospitalization; NS: non-significant.

2.1. Inclusion and exclusion criteria

The patients included presented:

- an isolated ACL tear (including associated meniscus and chondral lesions);
- were older than 15 years of age;
- were undergoing their first arthroscopic reconstruction;
- which was performed by experienced surgical teams in ACL reconstruction;
- using any surgical and grafting techniques currently performed in France (Table 1).

Outpatient surgery was proposed to all patients seen in consultation for ACL surgery. The CH group included only patients who denied outpatient surgery because of organizational problems (patients who were difficult to manage in an outpatient setting because the medical facility was far from their home, those living alone, or those needing to climb multiple flights of stairs). However, patients declined for medical issues – age over 60 years, ASA scores 3 and 4, medical cause requiring hospitalization (history of phlebitis, hemostasis disorders, infection, or neurological disorders) – were excluded from the study. Finally, patients refusing to participate in the study were not included in the database.

Two groups were created: an outpatient (OP) group including the patients who were eligible for outpatient surgery and who had given their consent, and a conventional hospitalization (CH) group comprising all the patients denied for outpatient surgery for organizational reasons.

2.2. Patient pathway

The clinical pathway differed from one center to another, but they all followed an identical master plan (Fig. 1). Before surgery, all the exclusion criteria for outpatient surgery were verified by the surgeon and the anaesthesiologist. During the preoperative consultation with the surgeon, after the patient had been informed of how the surgery would take place and the expected results, and if there were no medical reasons for exclusion, outpatient surgery was proposed (patients who refused were then excluded from the study). A conventional hospitalization lasting 2–3 days was proposed to the other patients for organizational reasons. If the patient accepted outpatient surgery, the family physician was informed by mail, and the patient contacted a visiting nurse for the postoperative care the day after surgery. The preanesthesia consultation was classical for both groups, including the evaluation of the risk of bleeding, screening for abnormal infectious risk, the choice of prophylactic antibiotics, and assessment of the postoperative venous thromboembolic risk to adjust antithrombotic therapy. Particular attention was paid to the information given to the patient concerning the different anesthetic techniques and the postoperative multimodal pain management.

The OP group of patients arrived between 6:30 and 11:00 am on an empty stomach and then were operated until 2:00

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