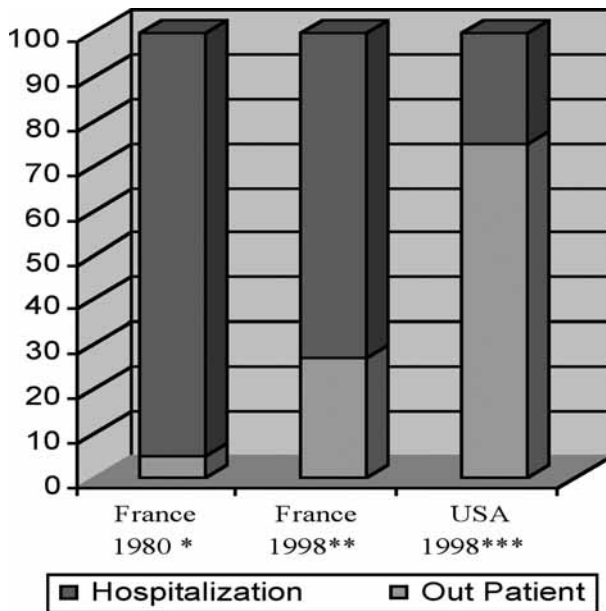


Pain Treatment at Home using Regional Catheter Techniques

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Introduction

The ambulatory surgery developed considerably and differently in each country during the last twenty years (France in 1980 : 5% = 180 000, in 1996 : 27% = 2 100 000 of the surgical procedures are ambulatory [1, 2]). In the USA the ambulatory surgery represents today between 70 and 80 % of surgical procedures [3, 4].



* Survey 1980 of the French Society of Anaesthesia Reanimation [1].

** Survey 1998 of the French Society of anaesthesia Reanimation [2].

*** Twersky 1998 [3].

In Europe, the Scandinavian countries are the most advanced countries in ambulatory surgery. The variation of data from our daily practice is explained by the heterogeneity of the studied groups.

The post-operative pain is a limiting factor to the development of the ambulatory surgery. In the guidelines of the SFAR (French Society of Anaesthesia and Reanimation), only simple, not very painful, and not disabling surgical procedures are included in ambulatory surgery [5].

This is an important point as painful surgical

procedures are not performed on an ambulatory basis in France, whereas they are in the USA (surgery of the rotators cuff, knee cruciate ligamentoplasty...) Furthermore, many studies show that the pain associated or not with nausea and/or post-operative vomiting is the most frequent cause of emergency re hospitalization [6, 7, 8] or of prolongation of the hospitalization [9].

The management of post-operative pain is highly important in ambulatory surgery, in order to maintain an equivalent quality of care similar to that in traditional hospitalization.

The Concept is : Continuous 24 to 48 hours post-operative regional analgesia at home for painful surgical procedures.

History

The first clinical cases of continuous peripheral regional analgesia at home were published in 1998 mainly by Rawal [10, 11, 12]. the possibility of continuing at home this type of analgesia offers, in the near future, the possibility to modify our practice and to create a new concept of hospitalization. The optimized control of postoperative pain obtained this way makes it possible to perform ambulatory surgical procedures, which hitherto required hospitalization of few days. Indeed, the pain remains classically an essential limiting factor for ambulatory surgery.

The guidelines of the SFAR on the ambulatory hospitalization do not exclude the extension of "these criteria (of hospitalization known quoted) according to the gained experience, and in particular after evaluation of the results". These guidelines also noted that "such extensions must be the object of a prior agreement between surgeon and anaesthetist".

If the discharge of a patient with an effective peripheral nerve block evokes no more controversy [13, 14, 15], continuous peripheral regional analgesia with a catheter at home is likely to cause

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some controversy. The possibility of prolonging analgesia with a peri-plexic or peri-neural catheter a current affairs and was the subject of an editorial in *Anesthesiology* in 2002 [16]. The published studies make it possible to control the benefit/risk ratio of this new method and to present its restrictions [11, 12, 17, 18, 19, 20, 21, 22, 23]

How to organize a post-operative continuous regional analgesia at home ?

Pre-necessary : The continuation of regional analgesia at home must be reserved for experienced teams in the realization and the management of post-operative peri neural catheters and a perfect knowledge of the quality of peri neural and/or periplexic catheters analgesias in conventional hospitalization for each type of procedure considered for ambulatory hospitalization or for early discharge Homecare Network : It is advisable to imply extrahospital regional analgesia trained healthcare partners such as : homecare nurses, family practitioner, physical therapist, It is preferable to choose existing networks than to create it. Often these networks have nurses coordinators charged to find the nurse with more close to the residence of the patient and to prepare the discharge of the patient.

All homecare nurses must be trained on the management of continuous regional analgesia and surgical procedures' care. The motivation and the availability of the nurses taking part in these networks are excellent. This formation is renewed each year.

Briefings are to be made with general practitioners, and with corresponding surgeons in order to involve them in the homecare team.

Day surgery or day two discharge should be defined with each surgeon. It is necessary to cooperate with surgeons who accept to perform day surgery on patients necessitating postoperative care.

The team who perform regional analgesia techniques at home should consider protocols of analgesia and surgical prescriptions on discharge, for each type of surgery and continuous regional analgesia technique. It is actually important to have at patient's disposal an information booklet with all instructions. All the above mentioned studies highlighted this point.

Published surgical procedures that can take advantage from continuous regional analgesia at home are :

- Shoulder surgery ; Rotator cuff repair, Acromioplasty (Continuous interscalen Block) [19, 20, 23].
- Elbow, forearm surgery or Hand surgery

(Continuous infraclavicular block) [21],

- Knee ; cruciate ligamentoplasty surgery (Continuous femoral or iliofascial block) [18]
- Hankle or foot surgery (Continuous popliteal sciatic block)[22],
- Inguinal hernia surgery (Continuous wound infiltration) [24]

Surgical pre assesment

During the consultation of surgery, the surgeon informs the patient of early discharge on Day 0 or Day 1 this decision will be confirmed at the end of the anaesthesia consultation.

Anaesthesia pre assesment

Different studies reported that most patients feared having bad time once back home after surgery [25, 26]. It is essential to give patients appropriate information and explanation about surgery and rescue pain killers and to repeat this information during the discharge visit.

REQUIREMENTS

- Accompanying person obligatory permanently.
- The patient is not authorized to leave his house as long as he is under perineural analgesia.
- The patient should have a homecare nurse in the neighbourhood.
- The distance between the patient's house and the hospital should not exceed 1 hour driving time. The anaesthetist should inform his colleagues about his patients.
- The homecare nurse should be appointed since the preanesthesia consultation in cooperation with the coordinator of homecare nurses then he or she should confirm lately the name and the address of the appointed nurse. The name and address of the appointed nurse should figure in the anesthesia file.
- Information and inscription of the patient in the programme of hospitalization with early discharge During the anaesthesia consultation the patient receives oral and written information about :
 - a. Evaluation of the pain by analogical visual scale (VAS).
 - b. Side effects and signs of toxicity of the local anaesthetic. – excessive extension of regional analgesia (for the interscalenic and infraclavicular blocks) and how to clamp the device in case of extension.
 - c. The analgesic rescue treatment in case of

insufficient analgesia.

An oral form of morphine sulphate with immediate release (Actiskéan®, Sevredol®) is particularly adapted in this circumstance. A protocol of auto administration was evaluated recently [27].

Day of surgery

It is necessary to check that the requirements are filled.

Anaesthesia performance

It is essential to confirm the good position of the peri neural or plexic catheter and the good quality of postoperative analgesia. Any failure of regional anaesthesia contra-indicates the early discharge of the patient. The intervention is carried out under regional anaesthesia, associated if needed with a sedation or a general anaesthesia for patient's comfort on his request and not because of insufficient regional anaesthesia.

Klein in the editorial of Anesthesiology of June 2002 [17] insisted on the validation of the catheter by the administration of "broad test proportions" anaesthetic solution with épinéphrine before discharging the patient to eliminate any intra vascular catheter. We do not adapt this guideline to confirm the good position of the catheter. For post-operative analgesia, the chosen local anaesthetic by many teams in the published studies is Ropivacaïne 2 mg/mL (less toxicity [28, 29] and very small motor block [30]) with constant flow of 7 ml/h for the interscalenic catheter, as well as for infra clavulaire and popliteal sciatic nerve and 5 ml/h for ankle catheters. There are elastomeric infusors with variables flow (5, 7 or 12 ml/h with the possibility

of carrying out bolus of 5 ml every 20 minutes).

For local anaesthetics' delivery devices, different studies preferred elastomeric pumps rather than electronic ones because alarms may cause patient's anxiety [31]. The disposable character of the device (elastomeric pumps) seems attractive.

The peri neural infusion of local anaesthetic must begin in the recovery room. In practice the block is performed with a local anaesthetic of short duration of action Lidocaïne or Mépivacaïne then Ropivacaïne 0,2% takes over the analgesia. Once the effect of the surgical block is over, the quality of analgesia should be tested before patient's discharge. The infusor [32] is connected on the peri neural or plexic catheter by the team of homecare at time of discharge and the device fixed on the patients waist with a belt.

MEDICAL EXAMINATION OF EXIT

It makes it possible to give to the patient a complete file : surgical report and medical file, regulations of monitoring, prescriptions for the nurse, Booklet of information, with telephone numbers (surgeon and anaesthetist) or call center. This visit is carried out after the visit of the co-ordinating nurse of the homecare network to control the good quality of analgesia, the absence of side effects at discharge from the recovery room (either since 6 h. for ambulatory and 18 h. for day one discharge) and to repeat the instructions to the patient.

POST OPERATIVE CONTACTS

A daily phonecall contact between the patient and the anaesthetic team allows to control the absence of any side effects or problems. The catheter is withdrawn 48 or 72 h. after surgery by the homecare nurse. The files of monitoring sheet filled by the nurse and patient are picked up to control the VAS at home and the used rescue medications . A phone call must be carried out the following day after discontinuing the perineural catheter in order to check the absence any neurological complication.

In respect to these recommendations we were able since september 2000 to treat many patients at home without major complications nor side effects.

Obstacles :

- The cost of the elastomeric diffuser is 24 to 45 according to the model and marks'.
- Supply of the L.A. (Ropivacaïne 240 ml with 0.2% = 26,32). Certain teams in France obtained delivery of ropivacaïne for ambulatory sur-

Photo 1

NOT IN OUR POSSESSION !!!

Photo 1. — Elastomeric Infusor.

Photo 2**NOT IN OUR POSSESSION !!!**

Photo 2. — Patient at home.
Published with the patient's authorisation.

gery by hospitals' central pharmacy.

- Refusal of certain companies of healthcare insurance to deal with the type of analgesia.

A study showed that these techniques reduce the duration and the cost of hospitalization [??] this should allow, at long term the recognition of this new method of homecare network by healthcare organizations, and to assign them a specific quotation for homecare nurses, like for the anaesthetic and surgical team These obstacles naturally will disappear.

Conclusions

The selection criteria of the patients likely to get advantage from ambulatory surgery are evolving. The development of regional analgesia techniques should make possible the extension of day surgery to painful surgical procedures, in this case continuous regional anesthesia may give pain free issue. The practice of a continuous regional analgesia and its optimal management within the framework of a network city-hospital, will make it possible to extend this kind of care to more complex and painful peripheral orthopedic surgery The fear of surgical or analgesia complications is the main obstacle slowing the development of this new method.

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