Perioperative analgesia in day surgery
Continuous nerve blocks: Experience in The Netherlands

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Disclosure

I have no actual or potential conflict of interests in relation to this presentation

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What am I going to tell you?

- The blocks with perineural catheters we perform
- The guidelines
- The preassessment
- Home care
- The successes
- The problems
- Teamwork
- The future

Role of the patient

- Till 2015: the patient played a central role in his treatment.

- From 2016: the patient has to play an **active** central role in his treatment.

The blocks we perform with perineural catheters

- Depending on the surgical site and the postoperative pain, we place the following catheters:
  - The most performed:
    - Popliteal
    - Supraclavicular
    - Interscalene
    - Adductor canal
  - The less performed
    - Axillary
    - Infraclavicular
    - Femoral
    - Sciatic

The portable drug infusion pumps we use

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- We all use elastomeric pumps:
  - Continuous
  - Multi rate
  - Continuous + bolus (PCA)
- The use of electronic pump with remote control in a multi-centric trial has been rejected by the Ethic Committee
- The elastomeric pumps have to be aseptically filled in and conditioned by the hospital central pharmacy.
- After placement, an elastomeric pump has to be removed after max. 72 hours.
- We use mostly Ropivacaine 2 mg/ml
- The price per pump varies between 70 and 120 euros

The Dutch guidelines concerning continous nerve blocks

- Placement of perineural catheters

- Perineural catheters and anticoagulants

- Home care

Directives placement of perineural catheters: the Wound Infection Prevention committee

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- 2011: decided by law that we have to place catheters in operating room “class 2“ (turbulent airflow, total volume changed 6 times an hour, pressure difference, etc....)
- Inapplicable or unrealistic, not evidence based: **we refused apply this directive.**
- Publication in Medisch Contact (journal of the Royal Dutch Medical Association):

This directive harms the good image of the WIP

- Saint Maarten Hospital in Nijmegen analyzed the financial consequences based on 1500 perineural catheters a year: 1,8 million euros.
- This directive will stay as concept till December 2015
- December 2015, the same directive has been confirmed and published without consulting anybody. We won’t change our practice and we refuse again to follow this directive.

Guidelines perineural catheters and anticoagulants

These are the last concept guidelines which has to be approved shortly.

Medication	Time between last dose and placement cath.	Time between placement cath. and next dose	Time between last dose and removal cath.	Time between removal cath. and next dose	Administration local anesthetics through catheter
ASA +/-Dipyridamol	none	none	none	none	none
ADP receptor antagonist	none	none	none	none	none
ASA +/-Dipyridamol and ADP receptor antagonist	none 7 days	none 8 hours	none 7 days	none 8 hours	none Not recommended
ASA + NSAID	none	none	none	none	acceptable
ADP receptor antagonist + NSAID	none	none	none	none	acceptable
Vit K antagonist and ASA+/-Dipyridamol ADP receptor antagonist NSAID	INR <2,0 Don't stop 7 days Don't stop	INR <2,0 Don't stop 8 hours Don't stop	INR <2,0 Don't stop 7 days Don't stop	INR <2,0 Don't stop 8 hours Don't stop	Acceptable if INR<2,2 AND Stop ADP receptor antagonist Don't stop ASA /NSAID / Dypiridamol
LMWH Prophylaxis Therapeutic	none 24 hours	none 24 hours	none 24 hours	none 24 hours	none Not recommended

Perineural catheter and direct thrombin inhibitors

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Medication	Time between last dose and placement cath.	Time between placement cath. and next dose	Time between last dose and removal cath.	Time between removal cath. and next dose	Administration local anesthetics through catheter
Fondaparinux Prophylaxis	none	none	none	none	Acceptable
Dagibatran Prophylaxis Therapeutic	none 24 hours (longer if renal impairment)	6 hours	None 24 hours (longer if renal impairment)	6 hours	Acceptable Not recommended
Rivaroxaban Prophylaxis Therapeutic	none 24 hours	6 hours 24 hours	none 24 hours	6 hours 24 hours	Acceptable Not recommended

Guidelines Home care

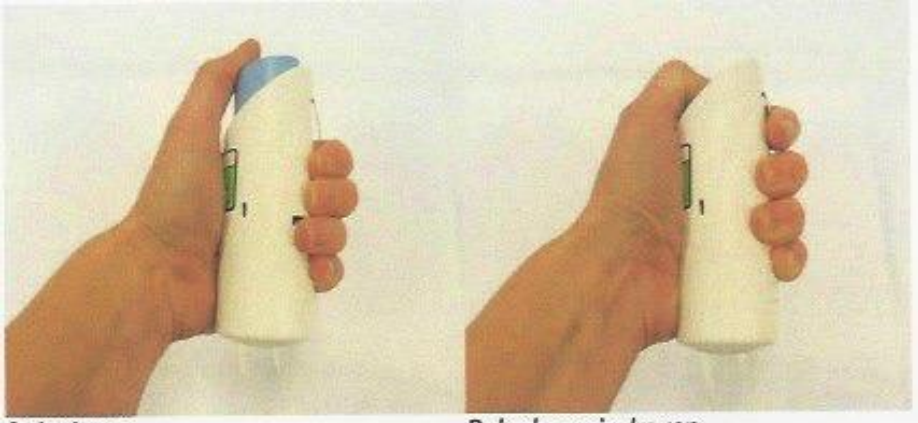
NO GUIDELINES

The preassessment

- Is performed by an anesthesiologist or a anesthetist nurse.
- It will be the moment to select and inform the patients who are eligible for a portable drug infusion pump at home (ASA 1,2,3 - home situation)
- The patient will receive a brochure with all necessary information.
- The preoperative consultation is combined with an interview with a nurse from the day care hospital who will explain everything again.

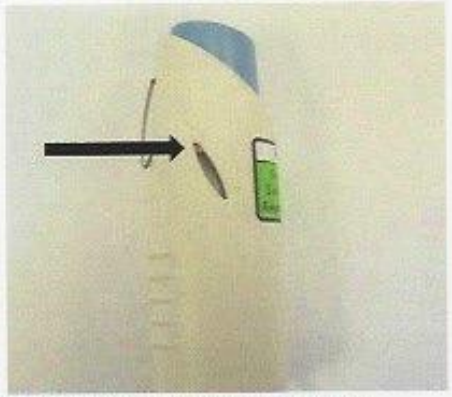
The information brochure

- Summarize all what has been said at the consultation and the moment of discharge.
- Contains all necessary information the patient will need when being back home.
- Contains phone numbers to contact in case of problems, complications.
- Contains a rubric FAQ's which has been build on the most common problems we have been confronted with in the last years.
- Contains instructions concerning the removal of the catheter and eventual problems.

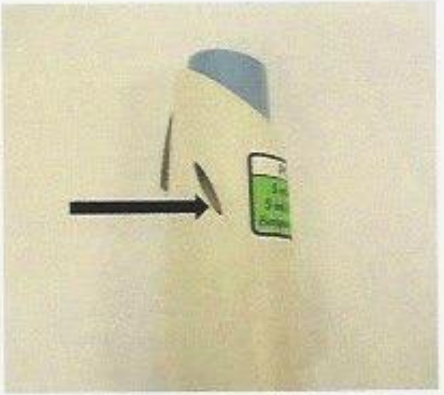


Bolusknop *Bolusknop induwen*

Aan de zijkant van de bolusknop is een oranje streepje zichtbaar. Dit is een indicator voor het herladen van de bolusfunctie. U kunt zichzelf een bolus toedienen wanneer het oranje streepje zichtbaar is. Nadat u op de bolusknop hebt gedrukt is het oranje streepje volledig verdwenen. Na enkele minuten begint hij langzaam terug te kruipen. Wanneer het oranje streepje weer volledig bovenaan zichtbaar is betekent dit dat de bolusfunctie weer volledig herladen is en dat u zichzelf weer een bolus kunt toedienen. Het herladen duurt ongeveer 1 uur.



Indicator: volledig opgeladen



Indicator: na toedienen bolus

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Het verwijderen van de katheter

De pijnpomp is aangesloten op de katheter. Deze katheter dient uiterlijk 72 uur na het inbrengen verwijderd te worden. De verpleegkundige schrijft in deze folder op pagina 1 de datum en tijd voor u op wanneer u de katheter uiterlijk moet verwijderen. Als de pijnpomp eerder leeg is, mag u de katheter natuurlijk ook eerder verwijderen.
Het verwijderen van de katheter doet u op deze manier:

1. Leg een pleister klaar
2. Was uw handen
3. Ga rustig zitten met uw been hoog, bijvoorbeeld op bed
4. Verwijder de pleisters in de knieholte waarmee de katheter vastgeplakt is. Als de pleister erg vast zit kunt u hem losweken met wat water
5. Het dunne slangetje zit ongeveer 5 cm onder de huid en komt makkelijk los, u kunt er rustig aan trekken tot het helemaal verwijderd is
6. Na het verwijderen plakt u een pleister op de plek waar de katheter heeft gezeten. Er kan nog wat wondvocht uitlekken, dat is normaal. Na een dag kunt u de pleister verwijderen

Wanneer u dat prettiger vindt, kunt u bijvoorbeeld uw partner vragen voor u de katheter te verwijderen.

Patients selection

- The patients who are not eligible for an elastomeric pump at home :
  - Non compliant / unreliable / unwilling
  - Language barrier: only Dutch speaking, eventually English
  - Cognitive dysfunction (memory impairment, psychiatric disorders,..)
  - Lack of home support
  - Baseline ambulation difficulty
  - Significant organ dysfunction that increased the likelihood of neurologic or cardiac toxicity
  - Respiratory impairment is a contraindication for interscalene catheter at home
  - Religious considerations (Dutch Christian belt)

The day of the operation

- Check if the patient still remember what has been told at the consultation and if he has read carefully the folder.
- The perineural catheter will be placed at the holding aera
- All perineural catheter will be placed ultrasound guided, aseptically and will be secured (we use surgical wide steristrips®)
- Postoperatively at the recovery room:
  - Day case surgery: elastomeric pump will be placed directly
  - Extended recovery / short stay: patient will be discharged for the recovery room with a continuous / block PCA and the elastomeric pump will be placed before he goes home.

At home

- The patient is responsible for the management of his pump.
- The patient will be phoned the next day and then if needed. The pain score (NRS) has to be <4.
- He has been informed about the secondary effects, eventual complications: catheter dislocation, leak, block failure, toxicity,...
- He has to consult the information folder if needed.
- He can 24/7 take contact with an anesthesiologist or pain nurse.
- A rescue pain medication has been prescribed or given at hospital.

The FAQ's

- The catheter is leaking under the plaster, what should I do?
- The pump is empty, and now?
- The plaster is very hard pasted en its removal is painful, what can I do?
- I have to pull very hard to remove the catheter, what's happening?
- I removed the catheter but my arm / leg is still anesthetized, is it normal?
- I used the pump and the painkillers but I have still pain, what can I do?

The successes

- We have generally little problems.
- Every year in all hospital in the Netherlands is the Consumer Quality Index (CQ Index - National Healthcare Institute) measured: using perineural catheters at home results is highly appreciated by patients.
- Patients speaks to each other and some new patients ask for this technic.

The technical problems

- Leak: if not too important and if the patient is pain free we advise to try to keep the catheter at its place.
- Catheter dislocation: very few. It will be removed.
- Pump not emptying: very few: the patient gets a new one.
- Plaster detaching: every hospital has developed its own technic to fasten and secure the catheter.
- Catheter migration under the plaster: typically the patients gets pain while he was a long period pain free. Every patient has rescue medication. The catheter has generally to be removed.

Patient related problems

- The biggest problem is that the patient can’t stand the loos of sensation and motoric block: he will take the decision to remove the catheter, will have pain and will regret his action!

- Patient contacting his GP instead of us, who will send him to the emergency without contacting us.

- Patient doesn’t follow his revalidation program because he is pain free and does too much.

Problems per type block

- Interscalene block:
  - Is the most problematic despite patient selection and information about the possible secondary effects (light dyspnea, not lying flat in bed, hoarse voice) .
  - Some hospitals stopped performing this block in day hospitalization.
  - Extended recovery / Short stay allows us to evaluate the patient the next day before letting him go home with a catheter.
- Popliteal block:
  - Some surgeons wants the tourniquet placed at the thigh
  - The physiotherapists would prefer an early mobilization in foot surgery: motoric block impairs it.
- Other blocks: few problems

Financial considerations

- In the Netherlands the private insurances took these last years a dangerous dominant role in the health care.
- A disease and is treatment is seen as a product with a negotiated price for each hospital.
- The price of an elastomeric pump (70 – 120 euros) has to be included in the price and we have to argue about the costs / benefits.

Teamwork. How it can go wrong: an example

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Patient home with an interscalene catheter: in panic because of the motoric block

↓

Patients phones his GP who send him to the emergency

↓

At the emergency, young resident who doesn't know the procedure: he contact the neurologist

↓

The neurologist ask for an emergency MRI scan: serious anesthesia complication, pump stopped, catheter removed, no painkillers

↓

Next day, finally, the anesthesiologist will be consulted

↓

In the letter to the GP: patient admitted for serious anesthesia complication!!!!!!!!!!!!!!!!!!!!!!

Teamwork

- Involve everybody who can be consulted if a problem occurs:
  - Other anesthesiologists (in hospital with sub-specialism and general duty)
  - GP's
  - Emergency
  - Nurses
  - Other specialisms: neurology, cardiology, ...
- Organize regularly information meetings

The future

- Less blocks with perineural catheters in favor of:
  - long acting mixtures and painkillers or
  - proximal blocks with short acting local anesthetics combined distal blocks with long acting mixtures combined with painkillers for an early active revalidation

  OR

  more blocks with perineural catheters?

- New local anesthetics or drugs giving less or no motoric block?

- One project in our hospital for 2017: 30% of the TKA in day hospitalization with adductor canal blocks catheter (actually 1 night hospitalization for the THA / TKA if no complications).
- We are developing applications to communicate with patients through smartphones

Conclusions

- Patient active involvement is the key of the success.
- We select our patients.
- We try to educate our patient.
- We inform all participants in the healthcare chain.
- Rescue painkillers has to be adapted to the pain in case of problem.
- Interscalene block at home is perhaps better after one night hospitalization.

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Thank you for your attention

Merci de votre attention

Dank U voor uw aandacht