

# PATIENT CONTROLLED ANALGESICS FOR POST OPERATIVE PATIENTS

## In post-operative patients, how do PCA devices compared with traditional analgesic methods affect pain management during their hospital stay?

### What is a PCA?

- Patient-controlled analgesia (PCA) is a portable, computerized infusion pump that releases a regulated amount of analgesics typically intravenously or subcutaneously when a patient presses the button (Perry, Potter, Stockert, Hall, Ross-Kerr, Wood, Astle, and Duggleby, 2014 p.1040).
- The purpose of a PCA is to give the patient the control to manage their own pain before the pain gets intolerable, keep a steady level of comfortability and prevent complications that can arise from untreated pain. The button should be pressed on the earliest sign of pain or before a pain provoking activity (Perry et al., 2018 p.402).
- Notable strengths of the PCA are patient control for quicker pain relief, overall safe pain management with minimal risks of overdose or inappropriate use (Perry et al., 2014 p.1040).

### Application in Practice

- Educate the patient on the proper use of the PCA before their surgery and reinforce instructions after the surgery as needed. (Perry et al., 2014 p.1040)
- When educating the patient on the use of the PCA emphasize that the patient is in control of the medication, not their nurses or family. (Perry et al., 2014 p.1040)
- Instruct the patient to press the button at the onset of pain, they should not wait until the pain becomes unbearable.
- Teach the patient about the small pre-set doses and the lockout intervals and how they prevent the risk of overdose. (Perry et al.,

### Evaluating the PCA

- Have the patient demonstrate the use of the PCA for you. (Perry et al., 2014 p.1040)
  - Using the Teach-Back method, have the patient explain steps, purpose and use of the PCA system. If a patient is unable to teach-back correctly, develop a plan and revise the instructions. (Perry et al., 2018 p.402)
  - Evaluate the severity of the patient's pain after they have used the PCA using the pain scale. (Perry et al., 2014 p.1040)
- Assess the IV line and PCA device to make certain that it is functioning properly. Pump errors can increase a patient's risk for overdose. (Perry



### Patient FAQs

- Q: Will I overdose?  
A: The lockout feature and the small pre-set doses prevents the risk of overdose.
- Q: Can someone else press the button for me?  
A: Only you (the patient) can press the button, nurses and family members cannot press it for you.
- Q: When do I press the button?  
A: Press the button at the onset of your pain, do not wait until it is unbearable.
- Q: What if it does not help my pain?  
A: Notify your nurse if the PCA is not managing your pain. The dosages and lockout intervals can be adjusted. Additional medications may also be given to compensate.

### Complications & Common Side Effects

- Limitations of PCA is that it may not control all pain and additional pain medication can be required.
- Uncontrolled pain can have many side effects such as unable to tolerate movement and ambulation which then can result in issues such as deep vein thrombosis and decrease in tissue perfusion. Loss of appetite from pain induced nausea can occur and result in nutrition deficits, as well as restlessness and depression can be an outcome of pain (Perry et al., 2014 p. 1257).
- Pump programming error can occur and cause adverse effects (Perry et al., 2014 p.1041). Side effects of opioids are respiratory depression, sedation, nausea, vomiting, itching, urinary retention and constipation. Patients on PCA need close monitoring and bowel protocol to reduce constipation.

### Research

- In research study conducted by Ming, Hung, Huang, Tseng, Chen and Tung (2017), on postoperative total knee arthroplasty patients. The study included 177 participants divided into two groups, one that used PCA and one that received intravenous injections by a nurse. Epidural PCA methods were significantly relieve early postoperative pain more than conventionally administered analgesics IV injections. Research supported better pain relief, and knee flexion leading to faster post op knee rehabilitation.
- In a study conducted by Teresa and Denise (2014), the study uses 60 participants divided into two groups, one using the PCA and the other receiving oral analgesics through traditional methods. The article suggests that using a PCA compared to traditional method of oral analgesics was more effective in controlling POD2 pain. Patients using the PCA reported less pain during activities, sleeping and ambulation. Less pain was reported on the last 24 hours before discharge using the PCA as well as less total anxiety and stress.

### Conclusion

- Patients will have less post-op complications due to pain while using the PCA.
- Patient education is an important factor in the effectiveness of the PCA delivery system.
- Research suggests PCA is effective with pain management and comfort is improved compared with conventional methods of opioid analgesia.

### References

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