CARING FOR THE CHRONIC PAIN PATIENT IN THE OR

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Surgery is a known stressor and produces a number of physiologic changes associate with pain production. A number of chemical mediators are released with the trauma associated with surgery. Despite pain now being the 5th vital sign, with vigilant documentation of pain scores before and after surgery, many patients still report moderate to severe pain. These are patients who, for the most part, did not have pain prior to the injury or illness that led to their surgery. Patients who suffer from chronic pain have more pain than patients without chronic pain, and may be much more difficult to manage pre and post surgery.

Peripheral sensitization begins with the trauma of surgery. The actual cutting, traction and tension on body structures releases chemical mediators of inflammation and sympathetic amines which act locally to modify the free nerve endings and specific nociceptors in the area. Bradykinin, serotonin, and histamine sensitize and stimulate these receptors. Arachnodonic acid acts both locally and centrally to sensitize receptors. Interleukins are activated, which may help the sympathetic nervous system become involved in the initial response. Peripheral sensitization is characterized by a decrease in 1) activation threshold of receptors, 2) response time of receptors and an exaggerated response to a given stimulus. Primary hyperalgesia can lead to secondary hyperalgesia through release of neurotransmitters and activation of the vascular response. The activation of wide dynamic range neurons leads to hyperalgesia and recruitment of adjacent neurons, also contributing to the spreading sensation of pain. As pain increases and persists, other nerves including A beta and A alpha nerves can be recruited to carry pain, as well as the vagus nerve. Hence in some cases, poorly controlled surgical pain can lead to chronic pain or make a chronic pain condition much worse.

In evaluating patients with chronic pain coming to the O.R., we need to think about the preoperative care, intra-operative care and postoperative care that they receive. As the use of narcotics for chronic pain increases, more patients on chronic narcotics will be coming to the operating room. Currently, the number of such patients is unknown, but since pain is the most common complaint that brings patients to their physicians, the number will probably increase.

Preoperative care:

It is important to find out what type of chronic pain condition the patient has, and whether that area of the body will be included in the surgery. Patients with CRPS (chronic regional pain syndrome or RSD) of one extremity are at higher risk of developing the same problem in another extremity, either with surgery or with trauma, and so regional blocks should be strongly considered. Patients with chronic pelvic pain often have GYN procedures, which can aggravate their chronic pain condition, even though the procedures are planned to help their pain. It is important to stress to the patient to take their pain medications with a small sip of water on the day of surgery, so that they will be at

baseline. Some medications (such as anticonvulsants) have no intravenous dose; the decision to continue these medications should be made ahead based on the patient needs and the time before they can take oral medications again.

Identifying the chronic opioid consuming patient may be difficult. Not all patients readily admit they are using narcotics or may under report their use. The incidence of opioid abuse is increasing in this country. In 1992, 7% of college age people had ever abused pain prescription drugs. In 2002, that same group reported 22% had had at least one episode of abuse. Currently 1.8% of the population is estimated to be abusing opioid analgesics. If a patient is using opioid medication, they will have more pain postoperatively than patients not on preoperative opioids. It is important to discuss the increase in postoperative pain with the patient preoperatively, since patient expectations significantly influence the postoperative course.

Depression, gender, age, anxiety, psychological disease, preoperative use of opioids, and chronic pain are all predictors of poorer pain control and higher opioid needs. The results of the few studies looking at the amount of opioids patients with preoperative opioid use will need suggest that between 2-4 times the amount of their current opioid dose will be needed, in addition to the baseline dose. In addition, they often require longer hospitalization and longer use of opioids. And they will usually have a higher postoperative pain score, despite the higher use of opioids.

The higher need for opioids and the poorer pain control appear to be the result of opioid induced hyperalgesia. Although the exact dose needed for the development of this condition is unknown, opioid induced hyperalgesia can be viewed as a state of facilitated nociceptive signaling due to increased neurotransmitter release, spinal sensitivity to neurotransmitters, activation of NMDA receptors, cytokine activation and enhanced descending facilitation of the thalamic pain control system. Other possible mechanisms have also be suggested in some studies.

The best preoperative course is to make sure the patient has had a discussion preoperatively, detailing the exact doses of pain medications to be taken preoperatively, the potential for increased postoperative pain, the postoperative pain management plan (including regional techniques wherever possible), and reviewing the patient's concerns and fears. The pain management plan should include non-opioid adjuvant medication as suitable as well as regional blocks when possible. The use of PCA analgesia is extremely useful if the settings are realistic.

Intraoperative:

Intraoperatively the main concerns are to evaluate the patient for any appropriate regional block (and make sure it is working) and to begin titrating an

appropriate level of opioid. The amount of opioid given should cover the chronic dose (if not taken preoperatively), the intraoperative surgical stimulation, and begin to cover the increased postoperative needs. Long acting opioids are best for covering the daily dose. A continuous infusion of opioid may be the best intraoperative maneuver, depending on the dose needed. Remember that the pain will probably be higher than usual, and that most recovery room nurses feel limited in the total amount of opioid they are willing to give. Interestingly, patients who receive large doses of intraoperative opioids (and are not on chronic opioids) may develop acute tolerance and actually have more pain. If the patient is spontaneously ventilating, titrating to a respiratory rate of 12-16 may be helpful.

It has recently been appreciated that anxiety is common in chronic pain patients. In patients who have taken large doses of opioids without much improvement in pain, a small dose of an antianxiolytic may be helpful. Reviewing the patient's previous anesthetics can show whether this maneuver may be helpful. I personally like to give anxiolytics preoperatively where possible. Other adjuvant drugs should be utilized during surgery if possible – ketamine, ketorolac, NSAIDS, local anesthetic infiltration or lavage may all be useful.

In the recovery room, the regional techniques should be checked to make sure they are adequate (if used). The addition of clonidine (75-100 ug) will increase the duration of the block 50-100%. The nurse should be part of the team, with appropriate orders so that the pain will not skyrocket out of proportion while no physician is available to make adjustments. Modalities such as heat and or ice may also be useful. Special arrangements for family members to be available may be helpful.

Postoperative:

Postoperative care can be divided into the acute phase and the transitional phase. Acute postoperative care usually covers the first 24-72 hours or until the patient can be stabilized. If possible, the usual daily dose is continued orally and additional opioids added. If the patient can take oral medication, start with 1.5 times the daily dose as oral medication and use a PCA for breakthrough medication. If the patient cannot take oral medication, then a PCA can be used, but a basal rate for the first 24-48 hours approximating 1.5 times the daily dose will be helpful. Anticipate that the total need will be 2-4x the preoperative dose, but that no patient's dose can be predicted totally.

If an epidural or intrathecal infusion is used, then ½ the preoperative dose should still be given intravenously or orally, since otherwise the patient may develop withdrawal. The infusion may also need to continue longer than in the opioid naïve patient. Other regional techniques should also be considered. The development of longer acting morphine preparations may help with these patients in surgeries where anticoagulation is an issue.

Other adjuvant drugs should be continued as possible. If a ketamine infusion was not started intraoperatively, it may be helpful postoperatively, since ketamine blocks NMDA. A suggested starting dose would be 0.25 - 0.5 mg/kg IV bolus, followed by an infusion of 2 - 4 ug/kg/min as tolerated. A benzodiazepine in a small dose will help with anxiety as well as decrease unpleasant dreams from the ketamine.

Appropriate monitoring should be done, since opioid tolerant patients can still develop respiratory depression or oversedation. Since morphine has an active metabolite that is even more potent, it is not a good choice postoperatively if there is a chance of renal failure.

For the transition phase, use the opioid doses of the first 24-48 hours to determine the new daily opioid dose. Deliver at least ½ of the new daily dose as long acting opioid, and as much as is reasonable as short acting, which can be titrated down. The goal is to titrate back to the original daily dose in 1-3 months. Oral adjuvant medications are often helpful, and may need adjustment as the opioid dose is titrated. Followup blocks may be useful. Close interaction with the primary provider is helpful.

Conclusion:

As the use of opioids for chronic pain continues, chronic pain patients will present to operative rooms in increasing numbers. Identifing such patients and having a plan to cover their perioperative course will provide the best care for these patients as well as for their medical providers. The combination of regional techniques, aggressive early opioid use, adjuvant medications and appropriate titration should be used.