Ketamine Infusions for Outpatient Pain Management

A Policy Development Project

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ABSTRACT

Current literature supports using ketamine for both acute and chronic pain management. It is imperative that the development of evidence-based protocols and policies keep pace with health care delivery to ensure patient safety. This project's objective was to formulate an outpatient ketamine infusion policy that promotes consistent and evidence-based care within a specified hospital system. This policy addresses potential side effects and minimization of adverse events by addressing patient selection, level of nursing care required, appropriate monitoring, and staff education.

Key words: chronic pain, evidence-based practice, ketamine infusion, pain, quality improvement

CLINICAL ISSUE

Allowing pain to go untreated or undertreated has negative consequences for both the patient and the health care system, including extended hospital stays and increased hospital admissions that can lead to increased health care costs and decreased patient satisfaction.[1-3] Almost 2 decades ago, Cousins et al[4] recognized that health care could save between $100,000 and $1 million over the lifetime of 1 patient by preventing acute pain from becoming chronic pain. In a retrospective chart review, Coley et al[1] determined that their per patient charge for unanticipated admission or readmission for postsurgical pain management was $1869. In addition, persistent or chronic pain has been estimated to cost the United States between $560 billion and $635 billion a year in treatment and lost productivity.[5] Thus, health care research has long established the financial implications of undertreating or improperly treating chronic and acute pain. Recent findings suggest that ketamine hydrochloride (Ketalar; Par Pharmaceutical, Spring Valley, NY) may help prevent acute postsurgical pain from developing into difficult-to-manage chronic pain.[6] Because the N-methyl-D-aspartate receptor antagonist ketamine has shown promise in conditions with difficult-to-manage pain,[7] this older medication is now also gaining application for acute postsurgical pain.[7,8] Ketamine's use for analgesia is still considered off-label, although its utility as an analgesic is gaining acceptance. The project site had no outpatient policy on ketamine infusions for its patient population. Patients receiving ketamine infusions in an outpatient pain facility were at risk for receiving non–evidence-based care during those infusions.

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Problem

Medication options for chronic pain management differ from those used in acute pain management. Chronic pain conditions typically do not respond well to opioids, giving rise to nontraditional pain medications, such as ketamine, that may prevent and/or reverse central sensitization[6] and are gaining interest.[7] The project site had no policy or guiding documents for addressing patient care with ketamine infusions in the outpatient environment.

Significance

Ketamine, a realistic option for pain management, is an attractive alternative to other pain medications, such as

opioids. Its attraction stems from its ability to support hemodynamic function while not suppressing respirations. In addition, ketamine has shown promise in subanesthetic intravenous doses for difficult-to-treat pain conditions, is safe and effective in reducing acute postoperative pain, and may help reduce opioid consumption.[7,9-11]

Background

Ketamine is a surgical anesthetic that may cause a dissociative state, with an altered perception of the environment and/or hallucinations. Traditionally, because of these potential psychomimetic risks, ketamine infusions were relegated to the intensive care unit. However, Schwartzman et al[12] and Patil and Anitescu[13] demonstrated the safe use of ketamine infusions in the outpatient environment. Because additional medications, such as propofol, benzodiazepines, and antihypertensives, may be used during subanesthetic infusions for chronic pain management, nursing care during infusion is similar to the care in a level 1 postanesthesia care unit. Because ketamine infusions have been demonstrated to be safe in the outpatient environment, health care facilities need to have a policy in place that guides patient care for this procedure.

Literature Review

Much of the literature on ketamine infusions for pain management does not distinguish inpatient from outpatient use. Common themes in the literature on the use of ketamine have included its potential to cause a dissociative state, including hallucinations and emergent reactions, as well as the potential to minimize these events by using low/subanesthetic dosing and pretreating with a benzodiazepine. Although the use of ketamine infusions for pain management raises concerns for its potential side effects, it is important to remember that most pain medications have side effects that must be taken into consideration. Ketamine's side effects quickly resolve after the completion or discontinuation of the infusion. Potential side effects that have been reported include headache, sedation, psychomimetic issues, nausea, vomiting, and hypertension.

Schwartzman et al[12] used a double-blind, placebo-controlled trial to evaluate outpatient low-dose ketamine infusions for the treatment of complex regional pain syndrome, a chronic pain condition that manifests as pain disproportionate in intensity and lasting longer than expected in consideration to the original injury. Nineteen subjects completed the study—10 in the placebo group and 9 in the ketamine group. The researchers reported that among the 19 participants, 6 complained of headache; of those, 4 were members of the group that received ketamine. The authors further reported that there were no psychomimetic events during the infusions. All participants in the study were pretreated with a benzodiazepine.

Patil and Anitescu's[13] retrospective chart review of 369 outpatient ketamine infusions in 49 patients over a 5-year period was undertaken to discern the efficacy of outpatient ketamine infusions in patients with difficult-to-manage chronic pain. Patients were pretreated with a benzodiazepine and antiemetic before the infusion. The authors noted that 23 (46.9%) patients experienced 35 adverse effects, the most common being hypertension and sedation. A literature review on acute postsurgical pain by Jouguelet-Lacoste et al[8] indicated that out of 25 studies reviewed, only 1 study reported significant adverse events, which included excessive postoperative bleeding and an anaphylactic reaction to ketamine itself.

It is possible that the lack of reported significant adverse events in other studies is related to small study sizes, adequate pretreatment for anticipated side effects, proper monitoring, and patient selection.[7,12-16] Although standard dosing for ketamine infusions has yet to be established—the literature indicates wide dosing ranges, which are beyond the scope of this paper to address—the likely starting dose will be conservative, then adjusted to the patient's response. Furthermore, to mitigate ketamine's more problematic side effects, such as nausea, psychomimetic sensations, and/or hypertension, it is feasible that other medications may be used during ketamine infusions. Side effects can be anticipated and minimized by developing patient selection criteria, providing an appropriate level of nursing care during the infusion, monitoring patients properly, developing infusion treatment protocols, and creating policies for inpatient and outpatient environments. With these elements in place, a standardized level of care in the hospital system could be offered for patients who receive ketamine infusions for pain management.

Purpose

The purpose of this quality improvement project was to develop a policy in an identified hospital system's outpatient pain department for patients receiving ketamine infusions to treat difficult-to-manage chronic pain conditions. The policy project addressed the following: (1) patient selection criteria, (2) the level of nursing care to be provided, (3) the type/level of patient monitoring, (4) staff education, and (5) patient outcome criteria for ongoing quality improvement data.

Policy Question

Will the development and presentation of an evidence-based ketamine infusion policy by an interdisciplinary team and presentation to the chief nursing officer (CNO) and the hospital clinical practice committee result in the adoption of an outpatient ketamine infusion policy?

METHODS

Framework

Rogers' diffusion of innovation theory, which recognizes the complex nature of change and the importance

of commitment for change to be successful, was the framework of the project.[17,18] Rogers' theory is applicable because ketamine historically had negative connotations because of its psychomimetic side effects related to the large doses that typically had been used for anesthesia management. However, the side effects may be minimized in the low doses used for pain management. Because of the previously negative association with ketamine, the project leader decided that an interdisciplinary approach would help ensure that most, if not all, clinical concerns would be addressed, increasing the likelihood that the project would move forward based on clinical team consensus and commitment. Before the project start, knowledge-building interactions were used as a change tool for overcoming possible preconceived attitudes concerning ketamine's use for analgesic purposes.

Project Design

The project began after a "preproject" period that was used for networking and informal education. At the start of the project, an interdisciplinary task force was assembled to work on policy development. Members of the team included an anesthesiologist, a nurse manager, a pharmacist, a nurse liaison to pharmacy, and the project leader. At the first meeting, the need for the project was analyzed, the protocol for policy development in the hospital system was reviewed, and a timeline was established. The project leader updated the initial literature search for any relevant studies using the same search criteria. The Cumulative Index of Nursing and Allied Health Literature, PubMed, Cochrane Database of Systematic Reviews, and National Guideline Clearinghouse were searched using the terms *ketamine*, *ketamine infusion*, *safety*, *pain*, *persistent pain*, *chronic pain*, *low dose/chronic*, *outpatient*, *adverse events*, *practice guideline*, and *randomized controlled trial*. Searches were limited to full-text, peer-reviewed articles, and systematic reviews, using the Boolean connector AND for different word combinations. The initial literature search yielded 336 articles. After reviewing titles and abstracts, 317 articles were discarded, leaving 19 for further, in-depth review. As a result, another 13 articles were discarded. Two additional articles were retrieved during the literature search update. Multiple drafts then were developed and reviewed by the task force, and each revision was agreed on before a change was made. Once a final version was agreed on, the policy was ready for submission to the hospital's Policy Committee for approval.

Communication

Periodic meetings were held among the project leader, the task force, and project committee members. Various communication methods were used, including emails, phone calls, and face-to-face meetings, depending on the preferences of the task force and project committee members. Meetings had to be duplicated because not all committee members were available at the same time.

Project Timeline

The preproject phase for knowledge building and task force development took place from April to August 2016. During the fall of 2016, the official policy task force was created. Four formal meetings of 1 hour each were held. The initial meeting was held during the first week of September 2016. Subsequent meetings were held and sometimes repeated until the final meeting, which occurred in the first week of November 2016. The agenda for the initial meeting included:

- Analysis of the need for a policy specific to the outpatient environment
- Development of a timeline
- Review of the hospital's protocol for policy development
- Updating the literature search for any pertinent additions

The second meeting focused on development of the initial draft document, the third focused on a review of revisions, and the fourth finalized the draft policy. The final version was submitted to the CNO for review and approval. The CNO then submitted it to the Practice Policy Committee (PPC) for consideration. It took approximately 10 weeks for a final draft to be developed, revised, and ready for submission.

Setting, Ethical Considerations, and Budget

The setting was an accredited multispecialty hospital system in the southeastern United States. Because no identifying patient data were collected and the hospital considered the research a quality improvement project, the study was exempt from institutional review board approval. There were no overt costs; however, there were hidden costs for the meetings. The hospital system absorbed the cost of staff time, and the project leader covered ancillary meeting costs.

EXPECTED OUTCOME

The expected outcome was that an interdisciplinary group could develop an evidence-based policy that reflected the concerns of each discipline represented on the task force and addressed the care of patients receiving ketamine infusions for chronic pain management in the outpatient environment. The policy was expected to gain consensus, be submitted to the appropriate committee, and gain approval.

RESULTS

A completed policy was developed by an interdisciplinary health care task force. All concerns were addressed and agreed on, and the policy (Appendix A) was submitted for the health care system CNO's review at the end of November 2016. Additional documents were a natural outgrowth from the policy development and include an admission order sheet (Appendix B) and a discharge instruction sheet (Appendix C). The policy was approved by both the CNO and the PPC in November 2016.

CONCLUSIONS

The initial reaction of the various health care disciplines that use ketamine in the outpatient environment was one of caution. This hesitation was based on the negative history of the medication as an anesthetic agent. However, by thoughtful application of Rogers' diffusion of innovation theory and by bringing evidence-based literature to the task force, all parties were soon able to become familiar and comfortable with how the use of this treatment modality in the outpatient environment might benefit a specific patient population. An interdisciplinary approach to clinical policy development allowed each discipline's concerns to be addressed rapidly, with the primary interest being the safety of patients. The policy was developed based on evidence-based literature, and it addressed the concerns of all task force members regarding patient safety, patient selection, appropriate monitoring during infusion therapy, staff education, and appropriate staffing. The interdisciplinary task force was able to reach consensus quickly on a clinical policy and gain the approval of both the CNO and the PPC.

In today's world of fast-paced health care change, using an interdisciplinary group for clinical needs allows for most, if not all, clinical concerns to be addressed in a timely manner. When considering patients with chronic pain conditions, treatment in the outpatient environment offers many benefits, including lower treatment costs. In addition, the patient usually sees the same clinical staff. Under these circumstances, a therapeutic relationship may develop that allows a holistic approach to pain care. This project was specific to the health care system in which it took place, and it is recognized that it may not be applicable to other institutions. However, it is hoped that other facilities treating patients with chronic pain conditions will consider researching if and how outpatient ketamine infusions might be provided in their own system.

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APPENDIX A

SAMPLE POLICY
Outpatient Intravenous Ketamine Infusions for Chronic Pain Management

Purpose
To provide guidelines for the ordering, dispensing, administration, and monitoring of ketamine infusions for pain management in the outpatient environment.

Policy
1. Ketamine infusion procedures may only be posted by an anesthesiologist who also practices pain management.
2. The ordering and initiation of a ketamine infusion is restricted to the anesthesiologist who posted the procedure, ie, the posting anesthesiologist.
3. Registered nurses are not allowed to initiate or bolus ketamine.
4. Orders and infusion rate(s) must be provided by the posting anesthesiologist.
5. Registered nurses with additional education, training, and orientation specific to the procedure of ketamine infusions for pain management in the outpatient setting may maintain and adjust the rate based on the posting anesthesiologist's order.
6. Nursing Education will include didactic and orientation components:
    a. Presentation on ketamine's desired effects, contraindications, nursing responsibilities, side effects, and an explanation of ketamine's mechanism of action and pharmacodynamics
    b. Orientation to ketamine infusion procedure
    c. NetLearning module
7. Patients receiving ketamine infusions as a procedure to manage a chronic pain condition or syndrome will be cared for in a dedicated outpatient pain facility with staff trained and educated in this procedure.
8. The posting anesthesiologist will remain in the facility during the infusion.
9. A registered nurse will:
    a. perform a preprocedure nursing history and assessment (PAT component).
    b. admit the patient.
    c. provide care during the infusion.
    d. provide care for the patient postprocedure.
    e. provide patient education appropriate to the patient's level of health care literacy.
    f. document nursing care, patient response to treatment, vital signs, medications, and safety measures.
10. All registered nurses caring for a patient receiving a ketamine infusion will have evidence of current advanced cardiac life support training.
11. The registered nurse caring for the patient receiving a ketamine infusion will remain at the patient's bedside throughout the procedure or ensure that another licensed professional remains at the patient's bedside if she/he must step away.
12. Ketamine infusions must infuse through a syringe pump using a dedicated catheter or the most proximal port of a carrier solution. No free-flow administration.
13. Initial infusion rate will be started by the posting anesthesiologist.
14. Two-person verification is to be performed when ketamine is loaded into the pump and/or with a change in caregiver.
15. Ketamine infusions in the outpatient setting will be used for patients with a diagnosis of a difficult-to-manage chronic pain condition/syndrome.
16. Contraindications
    a. Hypersensitivity to ketamine (eg, allergy to ketamine)
    b. Known or suspected schizophrenia, even if controlled with medications
    c. Conditions associated with increased intracranial pressure
    d. Glaucoma
17. Precautionary use
    a. Patients with conditions associated with uncontrolled seizures, PTSD, delirium, concurrent or recent use of an MAOI
    b. Known or suspected cardiovascular disease, including angina, heart failure or hypertension, central nervous system masses, glaucoma

Preprocedure
1. Patient is to be admitted to pain suite, nursing history completed or updated, baseline vital signs obtained, baseline pain score obtained (NRS and/or NVPS), and medication list reviewed.
2. If patient has history of PTSD, head injury, is on or recently on (within 30 days) an MAOI, notify physician.
3. Verify NPO status (8 hrs NPO before and 2 hrs clear liquids only before procedure per anesthesia request).
4. Verify that patient is not on an antibiotic. If he/she is, determine the reason and notify posting anesthesiologist because procedure may have to be cancelled.
5. If the patient is a female of childbearing age, verify the patient's last menstrual cycle.
6. Obtain signature for procedure, if consent has not already been obtained.

(*continues*)

APPENDIX A (*Continued*)

7. Review discharge instructions and give patient a copy.
8. Have patient void before the procedure starts.
9. Start INT or IV or per ketamine order set.
10. Place patient in supine position on stretcher with side rails up. Apply monitors (see item number 4 under "Procedure" heading). Ensure patient is comfortable before proceeding.

Procedure

1. The posting anesthesiologist will initiate the ketamine infusion and remain at the patient's bedside during any periods of deep sedation. Each institution should define its definition of deep sedation.
2. The registered nurse assigned to the patient is to remain at the bedside (without other responsibilities) during the entire infusion procedure or arrange for another licensed professional to be present during his/her break. Nursing will be responsible for maintenance of the infusion after initiation, including rate/dose adjustments as ordered by the posting anesthesiologist.
3. The registered nurse will be responsible for maintenance of the infusion after initiation, including rate/dose adjustments as ordered by the posting anesthesiologist.
4. Monitoring will include:
    a. Cardiac, respiration rate, continuous SpO_2 monitoring, and end tidal CO_2 ($EtCO_2$).
    b. HR, BP, RR, pain assessment and sedation assessment (eg, NRS/NVPS, modified Aldrete and/or Pasaro sedation scale) at 5 minutes after infusion initiation and/or administration of anxiolytics or pain medications, every 15 minutes during procedure and PRN.
    c. Monitor patient for alertness, orientation, nystagmus, "bad dreams," or unpleasant hallucinations.
5. Notify the posting anesthesiologist for the following:
    a. Nystagmus
    b. Sustained HR $>$120
    c. BP $>$ 160/100 or 20% over patient's baseline
    d. Inadequate pain relief
    e. Agitation/anxiety unrelieved with anxiolytic
    f. Hallucinations
    g. O_2 saturation $<$92% (on room air)
6. Turn off infusion and notify anesthesiologist for the following:
    a. Respiratory depression
    b. Unresponsiveness
    c. Hallucinations causing agitation or uncontrolled anxiety
7. Nursing interventions include:
    a. Minimizing environmental stimuli (eg, lighting, loud voices, noxious stimuli)
    b. Observing for signs of agitation
    c. Reassuring patient
    d. Ongoing nursing assessment for:
        i. Patient level of consciousness
        ii. Orientation
        iii. Evidence of nystagmus
        iv. Bad dreams/unpleasant hallucinations

Postprocedure

1. Monitor: cardiac rate, blood pressure, respiration rate, continuous SpO_2 monitoring, end tidal CO_2 ($EtCO_2$), and pain level every 10 minutes $\times$ 4.
2. Then monitor pulse, blood pressure, respiration rate, continuous SpO_2 every 20 minutes $\times$ 2.
3. Patient may have PO fluids once sitting up, as requested.
4. Have patient void, if possible, before discharge.
5. The registered nurse will ensure that a signed discharge order is completed before discharging patient to home.
6. The patient should be:
    a. Accompanied by a responsible adult.
    b. Instructed not to drive, be alone, or sign legal documents for 24 hours postinfusion.
7. At discharge, record pulse, blood pressure, respiration rate, pain level, SpO_2, and activity level.

(*continues*)

APPENDIX A (*Continued*)

Clinical Practice Points

1. The goal of the ketamine infusion is to have the patient free of pain on the day of infusion.
2. Ketamine potentiates the action of opioids; however, patients with chronic pain conditions that require maintenance medications may still require other pain medications during/after infusion procedure.
3. Patients on maintenance opioids should be reminded that even if not having pain after the infusion they should not completely stop their opioids unless directed by the posting anesthesiologist. Otherwise, the patient is at risk of withdrawal symptoms.
4. Common side effects include nausea, headache, altered mental status, increased blood pressure, and/or tachycardia.
5. The occurrence of ketamine-related psychomimetic effects (eg, altered mental status, restlessness, disorientation, vivid dreams) is dose related.
6. Consider obtaining a baseline CMP or hepatic panel prior to first infusion.

Suggested Outcome Criteria for Quality Improvement Data

Safety Data

1. Airway intervention beyond a chin lift
2. Intervention (not including decreasing/stopping infusion) for sustained hypertension and/or tachycardia, eg, administration of an antihypertensive medication
3. Agitation or hallucinations unrelieved by medication management requiring infusion to be stopped

Patient Impact Data

1. Pain-score tracking
2. Quality-of-life impact
3. Use of adjunct pain medications
4. Frequency/interval of infusions

Abbreviations: BP, blood pressure; CMP, compete metabolic panel; CO_2, carbon dioxide; $EtCO_2$, end tidal CO_2; HR, heart rate; INT, intermittent therapy; IV, intravenous; MAOI, monoamine oxidase inhibitor; NPO, nothing by mouth; NRS, numeric rating scale; NVPS, nonverbal pain scale; O_2, oxygen; PAT, preadmission testing; PO, by mouth; PRN, as needed; PTSD, posttraumatic stress disorder; RR, respiratory rate; SpO_2, blood oxygenation level as measured by noninvasive pulse oximeter.

APPENDIX B

SAMPLE INFUSION ORDER SET

☑ Admit patient and obtain baseline vital signs
☑ Obtain signature for consent of ketamine infusion
☑ Review D/C instructions prior to procedure
☑ Have patient void prior to procedure start
☐Start INT ☐Start IV: fluid_____ @ _____ (to be used as carrier fluid)

INFUSION PERIOD

☑ Place patient in supine position of comfort on stretcher with HoB ↑ 15-25 degrees and FoB at level of comfort
☑ Apply cardiac, BP, continuous O_2 saturation, and $EtCO_2$ monitors
☑ Record vital signs q 15 minutes and PRN
☑ Monitor patient for level of pain (NRS/VAS), level of consciousness, and/or agitation/anxiety

Medications/IV Fluids/Oxygen (pre-, intra-, and postprocedure)

☐ Oxygen _____L/min via $EtCO_2$ NC PRN to maintain SpO_2 = or > than preprocedure level
☐ Midazolam 1-2 mg IV q_____mins IV PRN to total 5 mg
☐ Lorazepam 0.5 mg IV q 30 mins PRN to total 2 mg
☐ Ondansetron 4 mg IV**:** ☐at start of infusion and ☐at infusion completion for nausea
☐ Benadryl 25 mg IV × 1 dose

☐ Acetaminophen ☐**325 mg** ☐**500 mg tabs**, 1-2 tabs PO × 1 dose for c/o pain (max total 1000 mgs)
☐ Morphine _____mg IV q _____mins PRN to total of _____mg for c/o pain
☐ Dilaudid _____mg IV q _____mins PRN to total of _____ mg for c/o pain
☐ Ketorolac ☐**15 mg** IV **OR** ☐**30 mg** IV to total 30 mg for c/o of pain

☑ Infusion rate not to exceed _____unless provider is in direct attendance
☑ Ketamine is to be infused via infusion pump

Monitoring Procedure and Postprocedure Phases

☑ Cardiac, continuous SpO_2 monitoring, $EtCO_2$
☑ HR, BP, RR, sedation level, **5 min after** initiation, rate change adm of anxiolytics and/or pain medications
☑ **During Procedure**—HR, BP, RR, SpO_2, $EtCO_2$, pain, and level of sedation q 15 minutes and PRN
☑ **Postprocedure**—Monitor HR, BP, RR, SpO_2 q 10 minutes × 4 then q 20 minutes × 2 then PRN and at discharge

Notify the pain management physician for the following:
- Nystagmus
- Sustained HR >120
- BP > 160/100 or 20% over baseline
- O_2 sat <92%
- Inadequate pain relief
- Unresponsiveness
- Hallucinations
- Agitation/anxiety unrelieved with anxiolytics

May turn off infusion for the following:
- Respiratory depression
- Unresponsiveness
- Hallucinations causing agitation/ uncontrolled anxiety

_____
_____
_____

POSTPROCEDURE

☑ Transition patient to sitting and then to chair as tolerated
☑ Give PO fluids once patient is sitting, if requests
☐ Have patient void prior to discharge
☐ OK to discharge patient if they have not voided
☐ D/C INT/IV/O_2 prior to discharge ☑ May discharge patient once patient is up to chair, is oriented × 3, and vital signs are within 20% of preprocedure level

RN Signature: **Date and time:**

MD Signature: **Date and time:**

Abbreviations: BP, blood pressure; c/o, complaint of; D/C, discharge; $EtCO_2$, end tidal CO_2; FoB, foot of bed; HoB, head of bed; HR, heart rate; INT, intermittent therapy access; IV, intravenous; min, minutes; NC, nasal cannula; NRS, numeric rating scale; O_2, oxygen; PO, by mouth; PRN, as needed; q, every; RR, respiratory rate; sat, saturation; SpO_2, blood oxygenation level as measured by a noninvasive pulse oximeter; VAS, visual analog scale; ×1, times one; ×2, times two; ×3, times three; ×4, times four.

APPENDIX C

In case of emergency, call 911.

SAMPLE

Discharge Instructions for Patients Receiving an Outpatient Ketamine Infusion

- For 24 hours after the infusion, do not drive or operate any machinery/appliances that require your attention.
- After the infusion, go directly home and rest. You can expect to feel tired for the next 24 to 48 hours.
- You may have some nausea during the first 24 hours following the infusion. Light meals are suggested, and if you have been prescribed a medication for nausea, you may take it as directed.

❖ You may continue all of your normal medications, **except** your pain medication.

❖ For your pain medicines use the following instructions:

For maintenance pain medications:

☐ _____ next dose may be taken at _____
☐ _____ next dose may be taken at _____

For breakthrough pain medications:

☐ _____ next dose may be taken at _____
☐ _____ next dose may be taken at _____
☐ **Check if patient is NOT on any maintenance opioids or narcotics. Contact your physician if you:**

- Start to run a fever higher than 101°F.
- Experience nausea and/or vomiting that is unrelieved by medication and/or lasts more than 24 hours.
- Experience abnormal bruising or bleeding.
- Experience right-sided upper abdominal pain.

If you are unable to contact your physician and you are having these symptoms, go to the emergency room or your primary care provider.

_____ _____
Patient signature Date

_____ _____
Registered nurse signature Date

_____ _____
Physician signature Date

****Make copy for patient record.