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Nurse Guide for Week-by-week AE Management During CRT

This guide was developed based on nurses' experiences and practice. It should not take the place of your clinical judgment. These are general recommendations for educational purposes only. Individual recommendations for patients may vary.

AE=adverse event; CRT=chemoradiotherapy.

Table of contents

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Introduction

This guide may help your patients receiving CRT

Each section provides helpful tips and strategies to help optimize your patient's journey

- Understand the timing of AEs during and after CRT to help with early management
- Work together with your patient to proactively manage the CRT process, including tasks such as pre-authorizing medications so they can be filled and available prior to initiating treatment
- Help optimize patient performance status as quickly as possible before treatment since CRT can potentially worsen pre-existing conditions and comorbidities
- Understand your patient's health literacy and barriers to care, such as transportation and financial burden

Proactive AE management is important to your patient's CRT journey

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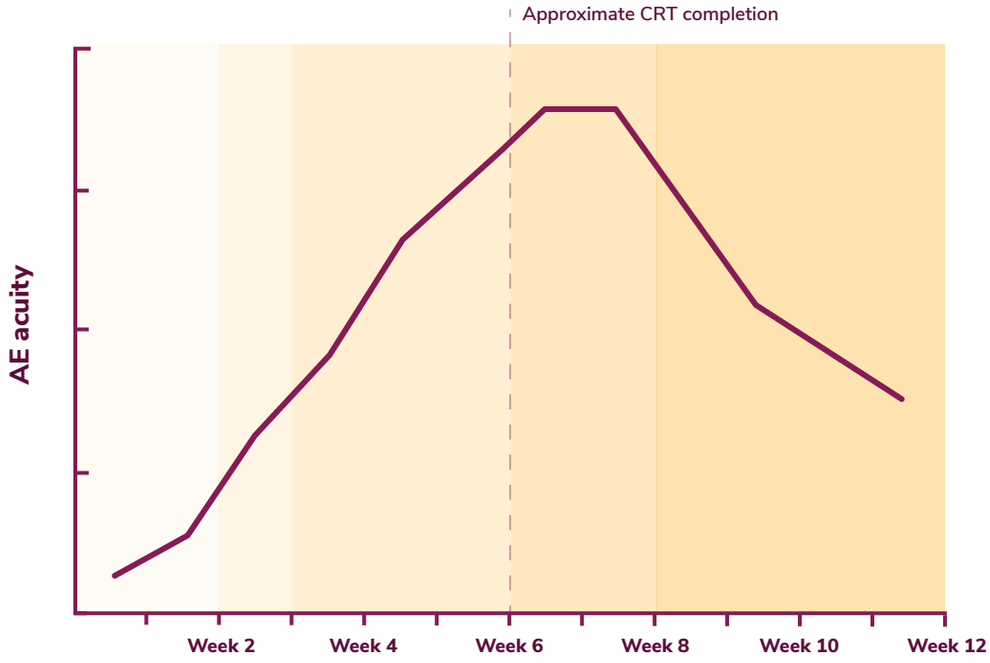
Weekly AE guide

AEs change over time and in intensity over the course of CRT, so it is important to manage them proactively

- Radiation-induced adverse events have different times of onset and vary in severity throughout CRT
  - For example, head and neck AEs, like esophagitis and difficulty swallowing, generally manifest during Weeks 2 to 3 and increase over time
- Many adverse events can resolve between 2 to 4 weeks after completion of CRT, but some may take months
- Given the variation in adverse event presentation and timing, it's important to stay vigilant and proactively manage any adverse events as they arise



Illustrative graph adapted from information in Poirier et al 2013 to represent the general AE presentation during and after CRT

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Week 1 CRT: Expectations and common AEs

What to expect

As patients begin treatment, they may start realizing the extent of side effects common with CRT and may develop anxiety as a result.

- Energy levels should not change within Week 1
- Note that side effects may be minimal during Week 1

Nausea | **Reflux** | **Thrush infection**

What to expect

- Patients may experience nausea early

How to manage

- Use anti-nausea medications based on chemotherapy emetogenicity
- Administer IV fluids as appropriate

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IV=intravenous.

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Nausea | **Reflux** | Thrush infection

What to expect

- Patients may experience early signs of reflux
- Patients with pre-existing reflux may experience exacerbation

How to manage

- Patients should be on prophylactic PPI and esophagus-coating anti-ulcer medication
- If needed, consider using a dopamine antagonist to further control symptoms

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PPI=proton pump inhibitor.

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- Energy levels should not change within Week 1
- Note that side effects may be minimal during Week 1

Nausea | Reflux | **Thrush infection**

What to expect

- May see thrush/Candida infection in the back of the throat (particularly in patients with diabetes)
- Patients may experience pain and difficulty swallowing due to infection

How to manage

- Start antifungals if indicated

Week 1 CRT: Helpful tips

Tips to help your patient

- Use Week 1 as an additional opportunity to ensure patients understand their treatment plan
- Instead of yes/no questions, ask specific, open-ended questions regarding hydration, nutrition, and exercise
- Ensure patients have all their medications (eg, antiemetics, etc) filled and ready at their home
- Note that serotonin receptor antagonists can cause side effects, including constipation and headaches

Exercise | **Hydration** | **Medications** | **Tests**

- Encourage patients to exercise
  - If unable to do 30 minutes per day at baseline, start with 5 to 10 minutes twice daily and add 1 minute each day

Week 1 CRT: Helpful tips

Tips to help your patient

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Exercise | **Hydration** | Medications | Tests

- Reinforce patient goal of 8 glasses of water per day
- Consider IV fluids if patients are not maintaining adequate hydration
- Recommend water flavoring or fruit juices to increase fluid intake

Week 1 CRT: Helpful tips

Tips to help your patient

- Use Week 1 as an additional opportunity to ensure patients understand their treatment plan
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Exercise | Hydration | **Medications** | Tests

- Continue PPI and esophagus-coating anti-ulcer medication
- Authorize or start anti-nausea medications (if needed)
- Pre-authorize pain medication (small pill-size)

Week 1 CRT: Helpful tips

Tips to help your patient

- Use Week 1 as an additional opportunity to ensure patients understand their treatment plan
- Instead of yes/no questions, ask specific, open-ended questions regarding hydration, nutrition, and exercise
- Ensure patients have all their medications (eg, antiemetics, etc) filled and ready at their home
- Note that serotonin receptor antagonists can cause side effects, including constipation and headaches

Exercise | Hydration | Medications | **Tests**

- Monitor CBC and metabolic profile
- Monitor cardiac function in patients with known cardiac issues

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CBC=complete blood count.

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Week 2 CRT: Expectations and common AEs

What to expect

- Patients will be settling into their routines
- Toward the end of Week 2, patients may experience difficulty swallowing or pain
- Patients who were symptomatic due to large tumors may begin to feel better as the tumor shrinks
  - Urge patients to continue adhering to the regimen even if the symptoms have improved
- Continue to be proactive and have patients' medications filled ahead of time

Nausea | **Reflux** | **Thrush infection** | **Pain**

What to expect

- Patients may experience early or worsening nausea
  - Worsening nausea may be due to dehydration

How to manage

- Use anti-nausea medications based on chemotherapy emetogenicity
- Administer IV fluids as appropriate

Week 2 CRT: Expectations and common AEs

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Nausea | **Reflux** | Thrush infection | Pain

What to expect

- Patients may experience early signs of reflux
- Patients with pre-existing reflux may experience exacerbation

How to manage

- Patients should be on prophylactic PPI and esophagus-coating anti-ulcer medication
- If needed, consider using a dopamine antagonist to further control symptoms

Week 2 CRT: Expectations and common AEs

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Nausea | Reflux | **Thrush infection** | Pain

What to expect

- May see thrush/Candida infection in the back of the throat (particularly in patients with diabetes)
- Patients may experience pain and difficulty swallowing due to infection

How to manage

- Start antifugals if indicated

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- Patients who were symptomatic due to large tumors may begin to feel better as the tumor shrinks
  - Urge patients to continue adhering to the regimen even if the symptoms have improved
- Continue to be proactive and have patients' medications filled ahead of time

Nausea | Reflux | Thrush infection | **Pain**

What to expect

- Pain may manifest as discomfort or difficulty swallowing toward the end of Week 2

How to manage

- Consider alternative formulations (eg, liquid suspension) or alternative routes of administration for pain medication
- Start patients on pain medication at the first sign of pain
- At the beginning of pain symptoms, use smaller, easier-to-swallow pain medications
- Provide pain medication as liquid, pill, or other types
- Avoid syrup-based pain medications that contain alcohol

Week 2 CRT: Helpful tips

Tips to help your patient

- Let patients know that difficulty swallowing can be a form of pain and can be managed with help
- Ensure patients have their medications in place
- Coach patients on the importance of pain medication to help minimize dehydration, malnutrition, and fatigue
  - Pain medications with a small pill-size may be ideal
  - Encourage patients to log pain medication use (frequency, dosage, etc) to aid in titrating as symptoms get worse

Exercise | Hydration | Medications | Tests

- Monitor fatigue and ensure patients are remaining active
  - Goal is 30 minutes of ambulation daily

Week 2 CRT: Helpful tips

Tips to help your patient

- Let patients know that difficulty swallowing can be a form of pain and can be managed with help
- Ensure patients have their medications in place
- Coach patients on the importance of pain medication to help minimize dehydration, malnutrition, and fatigue
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  - Encourage patients to log pain medication use (frequency, dosage, etc) to aid in titrating as symptoms get worse

Exercise | **Hydration** | Medications | Tests

- Ensure patients are drinking sufficient fluids given the potential for dehydration due to difficulty swallowing
- Reinforce patient goal of 8 glasses of water per day
- Measure BUN/creatinine ratio
  - BUN/creatinine ratio <20:1 or poor skin turgor indicates dehydration
- Consider IV fluids if patients are not maintaining adequate hydration

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BUN=blood urea nitrogen.

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Week 2 CRT: Helpful tips

Tips to help your patient

- Let patients know that difficulty swallowing can be a form of pain and can be managed with help
- Ensure patients have their medications in place
- Coach patients on the importance of pain medication to help minimize dehydration, malnutrition, and fatigue
  - Pain medications with a small pill-size may be ideal
  - Encourage patients to log pain medication use (frequency, dosage, etc) to aid in titrating as symptoms get worse

Exercise | Hydration | **Medications** | Tests

- Continue PPI and esophagus-coating anti-ulcer medication
- Initiate or continue anti-nausea medication
- Pre-authorize small pill-size pain medication (if not previously done)
- Consider administration of a hematopoietic CSF to bring neutrophil count up to 1000 cells/mm^3

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CSF=colony-stimulating factor.

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Week 2 CRT: Helpful tips

Tips to help your patient

- Let patients know that difficulty swallowing can be a form of pain and can be managed with help
- Ensure patients have their medications in place
- Coach patients on the importance of pain medication to help minimize dehydration, malnutrition, and fatigue
  - Pain medications with a small pill-size may be ideal
  - Encourage patients to log pain medication use (frequency, dosage, etc) to aid in titrating as symptoms get worse

Exercise | Hydration | Medications | **Tests**

- Monitor cardiac function in patients with known cardiac issues
- Measure blood counts
  - Hemoglobin <8 g/dL may require a blood transfusion
  - Patients may require CSF but can be discharged if neutrophil count is >500 cells/mm^3 without infection

Week 3 CRT: Expectations and common AEs

What to expect

- Patients who haven't already experienced AEs may start experiencing early signs, and they may worsen throughout the week
- Coach patients on the importance of pain medication to help minimize dehydration, malnutrition, and fatigue

Nausea | Reflux | Thrush infection | Pain | Thickened mucus | Mucositis/ esophagitis | Fatigue | Weight loss | Dehydration | Constipation

What to expect

- Patients may experience early or worsening nausea
  - Worsening nausea may be due to dehydration

How to manage

- Use anti-nausea medications based on chemotherapy emetogenicity
- Administer IV fluids as appropriate

Week 3 CRT: Expectations and common AEs

What to expect

- Patients who haven't already experienced AEs may start experiencing early signs, and they may worsen throughout the week
- Coach patients on the importance of pain medication to help minimize dehydration, malnutrition, and fatigue

Nausea | **Reflux** | Thrush infection | Pain | Thickened mucus | Mucositis/ esophagitis | Fatigue | Weight loss | Dehydration | Constipation

What to expect

- Patients may experience early signs of reflux
- As CRT continues, reflux may worsen or continue to worsen
- Patients with pre-existing reflux may experience exacerbation

How to manage

- Patients should be on prophylactic PPI and esophagus-coating anti-ulcer medication
- If needed, consider using a dopamine antagonist to further control symptoms

Week 3 CRT: Expectations and common AEs

What to expect

- Patients who haven't already experienced AEs may start experiencing early signs, and they may worsen throughout the week
- Coach patients on the importance of pain medication to help minimize dehydration, malnutrition, and fatigue

Nausea | Reflux | **Thrush infection** | Pain | Thickened mucus | Mucositis/ esophagitis | Fatigue | Weight loss | Dehydration | Constipation

What to expect

- May see thrush/Candida infection in the back of the throat (particularly in patients with diabetes)
- Patients may experience pain and difficulty swallowing due to infection

How to manage

- Start antifungals if indicated

Week 3 CRT: Expectations and common AEs

What to expect

- Patients who haven't already experienced AEs may start experiencing early signs, and they may worsen throughout the week
- Coach patients on the importance of pain medication to help minimize dehydration, malnutrition, and fatigue

Nausea | Reflux | Thrush infection | **Pain** | Thickened mucus | Mucositis/ esophagitis | Fatigue | Weight loss | Dehydration | Constipation

What to expect

- If pain or difficulty swallowing has not occurred by the end of Week 2, it may occur during Week 3

How to manage

- It is imperative to start patients on pain medication at the first sign of pain (which may manifest as difficulty swallowing)
- At the beginning of pain symptoms, use smaller, easier-to-swallow pain medications
- Titrate up pain medication if needed
- Burning neuropathic pain can be alleviated with a GABA analog
- Avoid syrup-based pain medications that contain alcohol
- Monitor for constipation and consider a stool softener with increased pain medication use

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GABA=gamma-aminobutyric acid.

Week 3 CRT: Expectations and common AEs

What to expect

- Patients who haven't already experienced AEs may start experiencing early signs, and they may worsen throughout the week
- Coach patients on the importance of pain medication to help minimize dehydration, malnutrition, and fatigue

Nausea | Reflux | Thrush infection | Pain | **Thickened mucus** | Mucositis/ esophagitis | Fatigue | Weight loss | Dehydration | Constipation

What to expect

- Saliva may thicken
- May cause gagging/vomiting

How to manage

- Use an expectorant
- Drink flat ginger ale if no contraindication

Week 3 CRT: Expectations and common AEs

What to expect

- Patients who haven't already experienced AEs may start experiencing early signs, and they may worsen throughout the week
- Coach patients on the importance of pain medication to help minimize dehydration, malnutrition, and fatigue

Nausea | Reflux | Thrush infection | Pain | Thickened mucus | **Mucositis/ esophagitis** | Fatigue | Weight loss | Dehydration | Constipation

What to expect

- Patients may experience nausea, discomfort, difficulty swallowing, or pain

How to manage

- Encourage easy-to-swallow diets such as smoothies, milkshakes, and nutritional shakes
- Avoid alcohol-based products
- PPI and esophagus-coating anti-ulcer medication can help manage symptoms

Week 3 CRT: Expectations and common AEs

What to expect

- Patients who haven't already experienced AEs may start experiencing early signs, and they may worsen throughout the week
- Coach patients on the importance of pain medication to help minimize dehydration, malnutrition, and fatigue

Nausea | Reflux | Thrush infection | Pain | Thickened mucus | Mucositis/ esophagitis | **Fatigue** | Weight loss | Dehydration | Constipation

What to expect

- Fatigue may start to set in, particularly from unmet nutritional needs or dehydration

How to manage

- Continue to encourage patients to exercise
- Encourage patients to drink 8 or more glasses of water per day
- Encourage caloric intake as required

Week 3 CRT: Expectations and common AEs

What to expect

- Patients who haven't already experienced AEs may start experiencing early signs, and they may worsen throughout the week
- Coach patients on the importance of pain medication to help minimize dehydration, malnutrition, and fatigue

Nausea | Reflux | Thrush infection | Pain | Thickened mucus | Mucositis/ esophagitis | Fatigue | **Weight loss** | Dehydration | Constipation

What to expect

- Patients may experience lack of appetite due to nausea, fatigue, or pain
- Patients may lose weight and muscle mass (may start early and could accelerate if not managed)
- Creatinine and/or albumin levels may decline

How to manage

- If calorie goals are being met but albumin levels are declining, increase caloric intake
- Encourage easy-to-swallow, high-calorie alternatives like shakes, smoothies, and whey protein
- Encourage different types of food (as tastes can change during treatment)
- Control the pain to increase fluid intake by mouth

Week 3 CRT: Expectations and common AEs

What to expect

- Patients who haven't already experienced AEs may start experiencing early signs, and they may worsen throughout the week
- Coach patients on the importance of pain medication to help minimize dehydration, malnutrition, and fatigue

Nausea | Reflux | Thrush infection | Pain | Thickened mucus | Mucositis/ esophagitis | Fatigue | Weight loss | **Dehydration** | Constipation

What to expect

- Measure BUN/creatinine ratio (<20:1 indicates dehydration)
- Check skin turgor to evaluate hydration status

How to manage

- Encourage patients to drink 8 or more glasses of water per day
- Provide IV hydration
- If liquid tastes bad, try taste-enhancer drops or other liquids (eg, shakes, smoothies)
- Control the pain to increase fluid intake by mouth

Week 3 CRT: Expectations and common AEs

What to expect

- Patients who haven't already experienced AEs may start experiencing early signs, and they may worsen throughout the week
- Coach patients on the importance of pain medication to help minimize dehydration, malnutrition, and fatigue

Nausea | Reflux | Thrush infection | Pain | Thickened mucus | Mucositis/ esophagitis | Fatigue | Weight loss | Dehydration | **Constipation**

What to expect

- Dehydration and/or pain medications may start to cause constipation
- May lead to fecal impaction or bowel obstruction

How to manage

- Ask patients detailed questions about bowel movements (frequency and stool consistency)
- Consider a stool softener with increased pain medication use

Week 3 CRT: Helpful tips

Tips to help your patient

- It is imperative to address AEs early before symptoms increase and become more difficult to manage
  - Symptoms may worsen throughout Week 3, and AEs may increase in severity by the end of Week 3
  - Ask patients how symptoms have changed from the previous week
- Reinforce to patients that if they are experiencing difficulty swallowing, this may be considered “pain” that could be managed
- Encourage patients to log pain medication use (frequency, dosage, etc) to aid in titrating as symptoms get worse

Exercise | Hydration | Medications | Tests

- Monitor fatigue and ensure patients are remaining active
  - Goal is 30 minutes of ambulation daily
  - Exercise combats fatigue, so it is especially important that patients keep active

Week 3 CRT: Helpful tips

Tips to help your patient

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- Encourage patients to log pain medication use (frequency, dosage, etc) to aid in titrating as symptoms get worse

Exercise | **Hydration** | **Medications** | **Tests**

- Ensure patients are drinking sufficient fluids given the potential for increased difficulty swallowing
- Reinforce patient goal of 8 glasses of water per day
- Measure BUN/creatinine ratio; BUN/creatinine ratio <20:1 or poor skin turgor indicates dehydration
- Consider IV fluids if patients are not maintaining adequate hydration
- Recommend water flavoring or fruit juices to increase fluid intake

Week 3 CRT: Helpful tips

Tips to help your patient

- It is imperative to address AEs early before symptoms increase and become more difficult to manage
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- Encourage patients to log pain medication use (frequency, dosage, etc) to aid in titrating as symptoms get worse

Exercise | **Hydration** | **Medications** | **Tests**

- Continue PPI and esophagus-coating anti-ulcer medication
- Continue anti-nausea medication
- Consider stool softeners
- It is imperative to start pain medication or titrate up
- Consider administration of a hematopoietic CSF to bring neutrophil count up to 1000 cells/mm^3

Week 3 CRT: Helpful tips

Tips to help your patient

- It is imperative to address AEs early before symptoms increase and become more difficult to manage
  - Symptoms may worsen throughout Week 3, and AEs may increase in severity by the end of Week 3
  - Ask patients how symptoms have changed from the previous week
- Reinforce to patients that if they are experiencing difficulty swallowing, this may be considered “pain” that could be managed
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Exercise | **Hydration** | **Medications** | **Tests**

- Monitor cardiac function in patients with known cardiac issues
- Measure blood counts
  - Hemoglobin <8 g/dL may require a blood transfusion
  - Patients may require CSF but can be discharged if neutrophil count is >500 cells/mm^3 without infection

Weeks 4 to 6 CRT: Expectations and common AEs

What to expect

- Patients may experience increased severity of AEs in Week 4, with severity increasing through Weeks 5 to 6

Nausea | Reflux | Thrush infection | Pain | Thickened mucus | Mucositis/ esophagitis | Fatigue | Weight loss | Dehydration | Constipation | Skin burns

What to expect

- Patients may experience early or worsening nausea
  - Worsening nausea may be due to increased mucus and dehydration

How to manage

- Use anti-nausea medications based on chemotherapy emetogenicity
- Administer IV fluids as appropriate

Weeks 4 to 6 CRT: Expectations and common AEs

What to expect

- Patients may experience increased severity of AEs in Week 4, with severity increasing through Weeks 5 to 6

Nausea | **Reflux** | Thrush infection | Pain | Thickened mucus | Mucositis/ esophagitis | Fatigue | Weight loss | Dehydration | Constipation | Skin burns

What to expect

- Reflux may worsen
- Patients with pre-existing reflux may experience exacerbation

How to manage

- Patients should be on prophylactic PPI and esophagus-coating anti-ulcer medication
- If needed, consider using a dopamine antagonist to further control symptoms

Weeks 4 to 6 CRT: Expectations and common AEs

What to expect

- Patients may experience increased severity of AEs in Week 4, with severity increasing through Weeks 5 to 6

Nausea | Reflux | **Thrush infection** | Pain | Thickened mucus | Mucositis/ esophagitis | Fatigue | Weight loss | Dehydration | Constipation | Skin burns

What to expect

- May see thrush/Candida infection in the back of the throat (particularly in patients with diabetes)
- Patients may experience pain and difficulty swallowing due to infection

How to manage

- Start antifungals if indicated

Weeks 4 to 6 CRT: Expectations and common AEs

What to expect

- Patients may experience increased severity of AEs in Week 4, with severity increasing through Weeks 5 to 6

Nausea | Reflux | Thrush infection | **Pain** | Thickened mucus | Mucositis/ esophagitis | Fatigue | Weight loss | Dehydration | Constipation | Skin burns

What to expect

- Difficulty swallowing or pain may continue to worsen

How to manage

- Titrate up pain medication if needed
- Consider long-acting opioid analgesics
- Burning neuropathic pain can be alleviated with a GABA analog
- Consider alternate formulations or administration routes
- Avoid syrup-based pain medications that contain alcohol
- Monitor for constipation and consider a stool softener with increased pain medication use

Weeks 4 to 6 CRT: Expectations and common AEs

What to expect

- Patients may experience increased severity of AEs in Week 4, with severity increasing through Weeks 5 to 6

Nausea | Reflux | Thrush infection | Pain | **Thickened mucus** | Mucositis/ esophagitis | Fatigue | Weight loss | Dehydration | Constipation | Skin burns

What to expect

- Saliva may thicken
- May cause gagging/vomiting

How to manage

- Use an expectorant
- Drink flat ginger ale if no contraindication
- Consider dairy-free alternatives and replace some calories with dairy-free products
- Volume intake may need to increase to maintain caloric intake goals

Weeks 4 to 6 CRT: Expectations and common AEs

What to expect

- Patients may experience increased severity of AEs in Week 4, with severity increasing through Weeks 5 to 6

Nausea | Reflux | Thrush infection | Pain | Thickened mucus | **Mucositis/ esophagitis** | Fatigue | Weight loss | Dehydration | Constipation | Skin burns

What to expect

- Patients may experience nausea, discomfort, difficulty swallowing, or pain

How to manage

- Encourage easy-to-swallow diets such as smoothies, milkshakes, and nutritional shakes
- Avoid alcohol-based products
- PPI and esophagus-coating anti-ulcer medication (eg, sucralfate) can help manage symptoms

Weeks 4 to 6 CRT: Expectations and common AEs

What to expect

- Patients may experience increased severity of AEs in Week 4, with severity increasing through Weeks 5 to 6

Nausea | Reflux | Thrush infection | Pain | Thickened mucus | Mucositis/ esophagitis | **Fatigue** | Weight loss | Dehydration | Constipation | Skin burns

What to expect

- Fatigue may worsen over time (lack of hydration, nutrition, and exercise all contribute to increased fatigue)
- Pain medication can also contribute to fatigue
- Patients with comorbidities may experience more fatigue

How to manage

- Continue to encourage patients to exercise
- Encourage patients to drink 8 or more glasses of water per day
- Encourage caloric intake as required

Weeks 4 to 6 CRT: Expectations and common AEs

What to expect

- Patients may experience increased severity of AEs in Week 4, with severity increasing through Weeks 5 to 6

Nausea | Reflux | Thrush infection | Pain | Thickened mucus | Mucositis/ esophagitis | Fatigue | **Weight loss** | Dehydration | Constipation | Skin burns

What to expect

- Patients may experience lack of appetite due to nausea, fatigue, or pain
- Patients may lose weight and muscle mass (may start early and could accelerate if not managed)
- Creatinine and/or albumin levels may decline

How to manage

- If calorie goals are being met but albumin levels are declining, increase caloric intake
- Encourage easy-to-swallow, high-calorie alternatives like shakes, smoothies, and whey protein
- Encourage different types of food (as tastes can change during treatment)
- Control the pain to increase fluid intake by mouth

Weeks 4 to 6 CRT: Expectations and common AEs

What to expect

- Patients may experience increased severity of AEs in Week 4, with severity increasing through Weeks 5 to 6

Nausea | Reflux | Thrush infection | Pain | Thickened mucus | Mucositis/ esophagitis | Fatigue | Weight loss | **Dehydration** | Constipation | Skin burns

What to expect

- Measure BUN/creatinine ratio (<20:1 indicates dehydration)
- Check skin turgor to evaluate hydration status

How to manage

- Encourage patients to drink 8 or more glasses of water per day
- Provide IV hydration
  - As CRT continues, increase IV to every other day or daily as needed
- If liquid tastes bad, try taste-enhancer drops or other liquids (eg, shakes, smoothies)
- Control the pain to increase fluid intake by mouth

Weeks 4 to 6 CRT: Expectations and common AEs

What to expect

- Patients may experience increased severity of AEs in Week 4, with severity increasing through Weeks 5 to 6

Nausea | Reflux | Thrush infection | Pain | Thickened mucus | Mucositis/ esophagitis | Fatigue | Weight loss | Dehydration | **Constipation** | Skin burns

What to expect

- Dehydration and/or pain medications may start to cause constipation
- May lead to fecal impaction or bowel obstruction

How to manage

- Ask patients detailed questions about bowel movements (frequency and stool consistency)
- Consider a stool softener with increased pain medication use

Weeks 4 to 6 CRT: Expectations and common AEs

What to expect

- Patients may experience increased severity of AEs in Week 4, with severity increasing through Weeks 5 to 6

Nausea | Reflux | Thrush infection | Pain | Thickened mucus | Mucositis/ esophagitis | Fatigue | Weight loss | Dehydration | Constipation | **Skin burns**

What to expect

- Radiation may cause skin burns

How to manage

- Use topical creams/ointments following radiation (clear with radiation oncology office first)
- Treat both radiation entry and radiation exit sites

Weeks 4 to 6 CRT: Helpful tips

Tips to help your patient

- Consistently ask patients about:
  - Exercise routine, and increase daily goal (up to 30 minutes daily)
  - Hydration and nutrition, and consult a nutritionist if patients are struggling with nutrition
  - Frequency of bowel movements
  - Urination frequency and color to monitor for dehydration
- As the weeks progress, check for mental fatigue and stress the importance of continuous treatment
  - Patients may want to take treatment breaks as symptoms get worse
  - Encourage patients to show up for treatment
  - Remind patients of the progress they have made
- Encourage patients to log pain medication use (frequency, dosage, etc) to aid in titrating if symptoms get worse

Exercise | Hydration | Medications | Tests

- Monitor fatigue and ensure patients are remaining active
  - Goal is 30 minutes of ambulation daily
  - Exercise combats fatigue, so it is especially important that patients keep active
- Consult a physical therapist as needed

Weeks 4 to 6 CRT: Helpful tips

Tips to help your patient

- Consistently ask patients about:
  - Exercise routine, and increase daily goal (up to 30 minutes daily)
  - Hydration and nutrition, and consult a nutritionist if patients are struggling with nutrition
  - Frequency of bowel movements
  - Urination frequency and color to monitor for dehydration
- As the weeks progress, check for mental fatigue and stress the importance of continuous treatment
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  - Remind patients of the progress they have made
- Encourage patients to log pain medication use (frequency, dosage, etc) to aid in titrating if symptoms get worse

Exercise | **Hydration** | Medications | Tests

- Ensure patients are drinking sufficient fluids given the potential for increased difficulty swallowing
- Reinforce patient goal of 8 glasses of water per day
- Measure BUN/creatinine ratio; BUN/creatinine ratio <20:1 or poor skin turgor indicates dehydration
- Consider IV fluids if patients are not maintaining adequate hydration
- Recommend water flavoring or fruit juices to increase fluid intake

Weeks 4 to 6 CRT: Helpful tips

Tips to help your patient

- Consistently ask patients about:
  - Exercise routine, and increase daily goal (up to 30 minutes daily)
  - Hydration and nutrition, and consult a nutritionist if patients are struggling with nutrition
  - Frequency of bowel movements
  - Urination frequency and color to monitor for dehydration
- As the weeks progress, check for mental fatigue and stress the importance of continuous treatment
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  - Encourage patients to show up for treatment
  - Remind patients of the progress they have made
- Encourage patients to log pain medication use (frequency, dosage, etc) to aid in titrating if symptoms get worse

Exercise | **Hydration** | **Medications** | **Tests**

- Continue PPI and esophagus-coating anti-ulcer medication
- Continue anti-nausea medication
- Consider stool softeners
- It is imperative to start pain medication or titrate up
- Consider administration of a hematopoietic CSF to bring neutrophil count up to 1000 cells/mm^3

Weeks 4 to 6 CRT: Helpful tips

Tips to help your patient

- Consistently ask patients about:
  - Exercise routine, and increase daily goal (up to 30 minutes daily)
  - Hydration and nutrition, and consult a nutritionist if patients are struggling with nutrition
  - Frequency of bowel movements
  - Urination frequency and color to monitor for dehydration
- As the weeks progress, check for mental fatigue and stress the importance of continuous treatment
  - Patients may want to take treatment breaks as symptoms get worse
  - Encourage patients to show up for treatment
  - Remind patients of the progress they have made
- Encourage patients to log pain medication use (frequency, dosage, etc) to aid in titrating if symptoms get worse

Exercise | Hydration | Medications | **Tests**

- Monitor cardiac function in patients with known cardiac issues
- Measure blood counts
  - Hemoglobin <8 g/dL may require a blood transfusion
  - Patients may require CSF but can be discharged if neutrophil count is >500 cells/mm^3 without infection

Weeks 7 to 8 (1 to 2 weeks post CRT): Expectations and common AEs

What to expect

- Although CRT is no longer being administered, AEs may continue to worsen during Weeks 7 to 8
- It is imperative to continue to see patients and proactively treat AEs

Nausea | Reflux | Thrush infection | Pain | Thickened mucus | Mucositis/ esophagitis | Fatigue | Weight loss | Dehydration | Constipation | Skin burns

What to expect

- Patients may experience worsening nausea
  - Worsening nausea may be due to increased mucus and dehydration

How to manage

- Use anti-nausea medications based on chemotherapy emetogenicity
- Administer IV fluids as appropriate

Weeks 7 to 8 (1 to 2 weeks post CRT): Expectations and common AEs

What to expect

- Although CRT is no longer being administered, AEs may continue to worsen during Weeks 7 to 8
- It is imperative to continue to see patients and proactively treat AEs

Nausea | **Reflux** | Thrush infection | Pain | Thickened mucus | Mucositis/ esophagitis | Fatigue | Weight loss | Dehydration | Constipation | Skin burns

What to expect

- Reflux may continue to worsen
- Patients with pre-existing reflux may experience exacerbation

How to manage

- Patients should be on prophylactic PPI and esophagus-coating anti-ulcer medication
- If needed, consider using a dopamine antagonist to further control symptoms

Weeks 7 to 8 (1 to 2 weeks post CRT): Expectations and common AEs

What to expect

- Although CRT is no longer being administered, AEs may continue to worsen during Weeks 7 to 8
- It is imperative to continue to see patients and proactively treat AEs

Nausea | Reflux | **Thrush infection** | Pain | Thickened mucus | Mucositis/ esophagitis | Fatigue | Weight loss | Dehydration | Constipation | Skin burns

What to expect

- May see thrush/Candida infection in the back of the throat (particularly in patients with diabetes)
- Patients may experience pain and difficulty swallowing due to infection

How to manage

- Start antifungals if indicated

Weeks 7 to 8 (1 to 2 weeks post CRT): Expectations and common AEs

What to expect

- Although CRT is no longer being administered, AEs may continue to worsen during Weeks 7 to 8
- It is imperative to continue to see patients and proactively treat AEs

Nausea | Reflux | Thrush infection | **Pain** | Thickened mucus | Mucositis/ esophagitis | Fatigue | Weight loss | Dehydration | Constipation | Skin burns

What to expect

- Difficulty swallowing or pain may continue to worsen

How to manage

- Titrate up pain medication if needed
- Consider long-acting opioid analgesics
- Burning neuropathic pain can be alleviated with a GABA analog
- Consider alternate formulations or administration routes
- Avoid syrup-based pain medications that contain alcohol
- Monitor for constipation and consider a stool softener with increased pain medication use

Weeks 7 to 8 (1 to 2 weeks post CRT): Expectations and common AEs

What to expect

- Although CRT is no longer being administered, AEs may continue to worsen during Weeks 7 to 8
- It is imperative to continue to see patients and proactively treat AEs

Nausea | Reflux | Thrush infection | Pain | **Thickened mucus** | Mucositis/ esophagitis | Fatigue | Weight loss | Dehydration | Constipation | Skin burns

What to expect

- Saliva may thicken
- May cause gagging/vomiting

How to manage

- Use an expectorant
- Drink flat ginger ale if no contraindication
- Consider dairy-free alternatives and replace some calories with dairy-free products
- Volume intake may need to increase to maintain caloric intake goals

Weeks 7 to 8 (1 to 2 weeks post CRT): Expectations and common AEs

What to expect

- Although CRT is no longer being administered, AEs may continue to worsen during Weeks 7 to 8
- It is imperative to continue to see patients and proactively treat AEs

Nausea | Reflux | Thrush infection | Pain | Thickened mucus | **Mucositis/ esophagitis** | Fatigue | Weight loss | Dehydration | Constipation | Skin burns

What to expect

- Patients may experience nausea, discomfort, difficulty swallowing, or pain

How to manage

- Encourage easy-to-swallow diets such as smoothies, milkshakes, and nutritional shakes
- Avoid alcohol-based products
- PPI and esophagus-coating anti-ulcer medication (eg, sucralfate) can help manage symptoms

Weeks 7 to 8 (1 to 2 weeks post CRT): Expectations and common AEs

What to expect

- Although CRT is no longer being administered, AEs may continue to worsen during Weeks 7 to 8
- It is imperative to continue to see patients and proactively treat AEs

Nausea | Reflux | Thrush infection | Pain | Thickened mucus | Mucositis/ esophagitis | **Fatigue** | Weight loss | Dehydration | Constipation | Skin burns

What to expect

- Fatigue may worsen over time (lack of hydration, nutrition, and exercise all contribute to increased fatigue)
- Pain medication can also contribute to fatigue
- Patients with comorbidities may experience more fatigue

How to manage

- Continue to encourage patients to exercise
- Encourage patients to drink 8 or more glasses of water per day
- Encourage caloric intake as required

Weeks 7 to 8 (1 to 2 weeks post CRT): Expectations and common AEs

What to expect

- Although CRT is no longer being administered, AEs may continue to worsen during Weeks 7 to 8
- It is imperative to continue to see patients and proactively treat AEs

Nausea | Reflux | Thrush infection | Pain | Thickened mucus | Mucositis/ esophagitis | Fatigue | **Weight loss** | Dehydration | Constipation | Skin burns

What to expect

- Patients may experience lack of appetite due to nausea, fatigue, or pain
- Patients may lose weight and muscle mass (may start early and could accelerate if not managed)
- Creatinine and/or albumin levels may decline

How to manage

- If calorie goals are being met but albumin levels are declining, increase caloric intake
- Encourage easy-to-swallow, high-calorie alternatives like shakes, smoothies, and whey protein
- Encourage different types of food (as tastes can change during treatment)
- Control the pain to increase fluid intake by mouth

Weeks 7 to 8 (1 to 2 weeks post CRT): Expectations and common AEs

What to expect

- Although CRT is no longer being administered, AEs may continue to worsen during Weeks 7 to 8
- It is imperative to continue to see patients and proactively treat AEs

Nausea | Reflux | Thrush infection | Pain | Thickened mucus | Mucositis/ esophagitis | Fatigue | Weight loss | **Dehydration** | Constipation | Skin burns

What to expect

- Measure BUN/creatinine ratio (<20:1 indicates dehydration)
- Check skin turgor to evaluate hydration status

How to manage

- Encourage patients to drink 8 or more glasses of water per day
- Provide IV hydration
- If liquid tastes bad, try taste-enhancer drops or other liquids (eg, shakes, smoothies)
- Control the pain to increase fluid intake by mouth

Weeks 7 to 8 (1 to 2 weeks post CRT): Expectations and common AEs

What to expect

- Although CRT is no longer being administered, AEs may continue to worsen during Weeks 7 to 8
- It is imperative to continue to see patients and proactively treat AEs

Nausea | Reflux | Thrush infection | Pain | Thickened mucus | Mucositis/ esophagitis | Fatigue | Weight loss | Dehydration | **Constipation** | Skin burns

What to expect

- Dehydration and/or pain medications may start to cause constipation
- May lead to fecal impaction or bowel obstruction

How to manage

- Ask patients detailed questions about bowel movements (frequency and stool consistency)
- Consider a stool softener with increased pain medication use

Weeks 7 to 8 (1 to 2 weeks post CRT): Expectations and common AEs

What to expect

- Although CRT is no longer being administered, AEs may continue to worsen during Weeks 7 to 8
- It is imperative to continue to see patients and proactively treat AEs

Nausea | Reflux | Thrush infection | Pain | Thickened mucus | Mucositis/ esophagitis | Fatigue | Weight loss | Dehydration | Constipation | **Skin burns**

What to expect

- Radiation may cause skin burns

How to manage

- Use topical creams/ointments following radiation (clear with radiation oncology office first)
- Treat both radiation entry and radiation exit sites

Weeks 7 to 8 (1 to 2 weeks post CRT): Helpful tips

Tips to help your patient

- Maintain the same level of vigilance in AE management even though concurrent CRT is not being administered
- Manage patient expectations, as they may incorrectly expect AEs to improve since they are not receiving CRT
- Continue to ask patients about hydration, nutrition, and activity
- Encourage patients to log pain medication use (frequency, dosage, etc) to aid in titrating as symptoms get worse
- Prepare patients for post-CRT consolidation therapy
- Consolidation chemotherapy is not recommended following concurrent CRT

Exercise | Hydration | Medications | Tests

- Monitor fatigue and ensure patients are remaining active
  - Goal is 30 minutes of ambulation daily
  - Exercise combats fatigue, so it is especially important that patients keep active
- Consult a physical therapist as needed

Weeks 7 to 8 (1 to 2 weeks post CRT): Helpful tips

Tips to help your patient

- Maintain the same level of vigilance in AE management even though concurrent CRT is not being administered
- Manage patient expectations, as they may incorrectly expect AEs to improve since they are not receiving CRT
- Continue to ask patients about hydration, nutrition, and activity
- Encourage patients to log pain medication use (frequency, dosage, etc) to aid in titrating as symptoms get worse
- Prepare patients for post-CRT consolidation therapy
- Consolidation chemotherapy is not recommended following concurrent CRT

Exercise | **Hydration** | **Medications** | **Tests**

- Ensure patients are drinking sufficient fluids given the potential for increased difficulty swallowing
- Reinforce patient goal of 8 glasses of water per day
- Measure BUN/creatinine ratio; BUN/creatinine ratio <20:1 or poor skin turgor indicates dehydration
- Consider IV fluids if patients are not maintaining adequate hydration
- Recommend water flavoring or fruit juices to increase fluid intake

Weeks 7 to 8 (1 to 2 weeks post CRT): Helpful tips

Tips to help your patient

- Maintain the same level of vigilance in AE management even though concurrent CRT is not being administered
- Manage patient expectations, as they may incorrectly expect AEs to improve since they are not receiving CRT
- Continue to ask patients about hydration, nutrition, and activity
- Encourage patients to log pain medication use (frequency, dosage, etc) to aid in titrating as symptoms get worse
- Prepare patients for post-CRT consolidation therapy
- Consolidation chemotherapy is not recommended following concurrent CRT

Exercise | **Hydration** | **Medications** | **Tests**

- Continue PPI and esophagus-coating anti-ulcer medication
- Continue anti-nausea medication
- Consider stool softeners
- Titrate up pain medication as needed
  - Pain may continue after completion of CRT
- Consider administration of a hematopoietic CSF to bring neutrophil count up to 1000 cells/mm^3

This guide was developed based on nurses' experiences and practice. It should not take the place of your clinical judgment. These are general recommendations for educational purposes only. Individual recommendations for patients may vary.

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Weeks 7 to 8 (1 to 2 weeks post CRT): Helpful tips

Tips to help your patient

- Maintain the same level of vigilance in AE management even though concurrent CRT is not being administered
- Manage patient expectations, as they may incorrectly expect AEs to improve since they are not receiving CRT
- Continue to ask patients about hydration, nutrition, and activity
- Encourage patients to log pain medication use (frequency, dosage, etc) to aid in titrating as symptoms get worse
- Prepare patients for post-CRT consolidation therapy
- Consolidation chemotherapy is not recommended following concurrent CRT

Exercise | Hydration | Medications | **Tests**

- Monitor cardiac function if applicable
- Measure blood counts
  - Hemoglobin <8 g/dL may require a blood transfusion
  - Patients may require CSF but can be discharged if neutrophil count is >500 cells/mm^3 without infection

Weeks 9 to 12 (3 to 6 weeks post CRT): Expectations, AEs, and tips

What to expect

- AEs may generally start to improve at the beginning of Week 9
- Patients will start to feel closer to how they felt before treatment by Week 12 (close to how they were feeling at approximately Week 3 of CRT)

Tips to help your patient

- Eligible patients may be started on consolidation therapy by Week 8 or 9 (3 weeks post CRT) based on their biomarker results
- Educate patients on AEs associated with consolidation therapy
  - Emphasize that the AEs expected with consolidation therapy differ from those seen with CRT
- Inform patients regarding whom to call and when if experiencing an AE

Nutrition | **Medications**

- Patients still need to avoid acidic foods until 6 weeks post CRT (Week 12) as the esophagus continues to heal

Weeks 9 to 12 (3 to 6 weeks post CRT): Expectations, AEs, and tips

What to expect

- AEs may generally start to improve at the beginning of Week 9
- Patients will start to feel closer to how they felt before treatment by Week 12 (close to how they were feeling at approximately Week 3 of CRT)

Tips to help your patient

- Eligible patients may be started on consolidation therapy by Week 8 or 9 (3 weeks post CRT) based on their biomarker results
- Educate patients on AEs associated with consolidation therapy
  - Emphasize that the AEs expected with consolidation therapy differ from those seen with CRT
- Inform patients regarding whom to call and when if experiencing an AE

Nutrition | **Medications**

- Esophagus-coating anti-ulcer medication (eg, sucralfate) can be reduced usually starting 3 to 4 weeks post CRT (Weeks 9 to 10)
- PPIs can also be tapered starting 3 to 4 weeks post CRT (Weeks 9 to 10), but some patients may need to stay on longer depending on the severity of the reflux
- Pain medications should be tapered slowly to avoid rebound pain and withdrawals
- Remaining medications can be tapered as symptoms improve, but this may not occur until Weeks 11 to 12

CRT considerations

It’s important to work closely with patients before, during, and after CRT

On the following pages, you will find suggestions and considerations for the CRT journey, including:

- Tips for proactive management
- Understanding the impact of CRT on comorbidities
- Nutrition strategies for success
- Other patient factors, like patient health literacy, transportation issues, and financial burden

Proactive management

Proper preparation is essential to helping patients complete CRT. The following tips can be used before treatment begins, to help prepare your patients for any AEs.

General management | Exercise | Hydration | Medications | Tests

- Monitor patients for toxicities at each treatment visit
- Send patients home with recommendations updated at each appointment, including an updated appointment calendar and other standing recommendations (eg, medication changes, calorie goals, exercise instructions)
- Note that treatment interruptions tend to result in worsened outcomes
- Help optimize patient performance status as quickly as possible before treatment since CRT can potentially worsen pre-existing conditions

Proactive management

Proper preparation is essential to helping patients complete CRT. The following tips can be used before treatment begins, to help prepare your patients for any AEs.

General management | **Exercise** | Hydration | Medications | Tests

- Monitor patient activity, and encourage patients to exercise and avoid being sedentary
- Ask patients to start with a goal of 30 minutes per day
  If patients cannot exercise for 30 minutes per day, start with 5 to 10 minutes of exercise per day
- Add 2 minutes to the daily goal each week
- Consult a physical therapist/physiatrist to tailor exercises to physical ability (eg, patients who use a wheelchair)

Proactive management

Proper preparation is essential to helping patients complete CRT. The following tips can be used before treatment begins, to help prepare your patients for any AEs.

General management | Exercise | **Hydration** | Medications | Tests

- Ensure patients are drinking sufficient fluids (8 glasses of water per day)

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Proactive management

Proper preparation is essential to helping patients complete CRT. The following tips can be used before treatment begins, to help prepare your patients for any AEs.

General management | Exercise | Hydration | **Medications** | Tests

- Pre-authorize and fill medications before treatment so they are available when patients need them
- Start patients on PPI and esophagus-coating anti-ulcer medication (eg, sucralfate)
- Direct patients to avoid ingesting liquid medicines, as they may contain products that can burn the throat
- Advise patients to cease all use of “complementary alternative medicines” (eg, high doses of vitamins E and C, herbals, and antioxidants)

Proactive management

Proper preparation is essential to helping patients complete CRT. The following tips can be used before treatment begins, to help prepare your patients for any AEs.

General management | Exercise | Hydration | Medications | **Tests**

- Test for biomarkers to help inform a long-term management plan that may include additional, post-CRT treatments
- Perform baseline tests: CBC, chemistry, electrolytes, renal, hepatic
- Perform EKG to monitor heart function as indicated
- Start tracking weight and albumin levels to evaluate nutritional state (protein intake)

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EKG=electrocardiogram.

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Understanding comorbidities and treatment considerations

Learn more about comorbidities and how to manage them below.

Reflux | Pulmonary disease | Kidney disease | Cardiac dysfunction | Diabetes | Hypertension

What to expect

- CRT can cause reflux, and pre-existing reflux can exacerbate esophagitis
- CRT can also cause and exacerbate esophagitis

How to manage

- Start high-dose PPI 2× daily and esophagus-coating anti-ulcer medication (eg, sucralfate) 4× daily
- Consider a dopamine antagonist as a promotility agent

Understanding comorbidities and treatment considerations

Learn more about comorbidities and how to manage them below.

Reflux | **Pulmonary disease** | Kidney disease | Cardiac dysfunction | Diabetes | Hypertension

What to expect

- Radiation to the lung can cause inflammation and worsen pulmonary function in the short-term
- Radiation may also cause pulmonary fibrosis, resulting in worsened pulmonary function in the long-term

How to manage

- Perform baseline pulmonary lung function tests and monitor as indicated
- Perform routine auscultation of the lungs
- Help optimize medications
- Encourage daily movement, exercise, and pulmonary rehab
- Consult a pulmonologist as needed

Understanding comorbidities and treatment considerations

Learn more about comorbidities and how to manage them below.

Reflux | Pulmonary disease | **Kidney disease** | Cardiac dysfunction | Diabetes | Hypertension

What to expect

- Chemotherapy can affect fluid-electrolyte balance, hydration, and protein status
- Fluctuations in these categories can impact kidney function
- Underlying renal dysfunction can affect chemotherapy choices for CRT
- Cisplatin is more problematic in patients with underlying kidney disease or electrolyte imbalance

How to manage

- Before CRT: Consider consulting a nephrologist for patients with poor renal function
- For patients on dialysis, coordinate dialysis to occur after chemotherapy administration
- During CRT: Monitor renal function and electrolytes

Understanding comorbidities and treatment considerations

Learn more about comorbidities and how to manage them below.

Reflux | Pulmonary disease | Kidney disease | **Cardiac dysfunction** | Diabetes | Hypertension

What to expect

- In patients with underlying cardiac dysfunction, the heart may experience additional stress with increased fluids given during CRT
- Radiation near the heart may cause short-term (eg, arrhythmia) or medium- to long-term (eg, pericarditis, coronary artery disease) conditions

How to manage

- In patients with underlying cardiac dysfunction, consider cardiology consultation prior to initiating CRT; perform close follow-up per cardiology recommendations
- Monitor (EKG) as indicated for patients with underlying rhythm abnormalities or for those at elevated risk for developing them
- Monitor fluids closely
- Perform routine auscultation
- Consider EKG as needed

Understanding comorbidities and treatment considerations

Learn more about comorbidities and how to manage them below.

Reflux | Pulmonary disease | Kidney disease | Cardiac dysfunction | **Diabetes** | Hypertension

What to expect

- Patients with diabetes can be more susceptible to renal and cardiac issues and may experience fluid imbalances
- Patients with diabetes may be at an increased risk for infection (eg, thrush/Candida, sepsis, UTI), have difficulty healing, and experience dehydration

How to manage

- Help optimize medications
- Monitor for dehydration, thrush/Candida, esophagitis
- Consult an endocrinologist as needed
- Maintain blood glucose <200 mg/dL

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UTI=urinary tract infection.

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Understanding comorbidities and treatment considerations

Learn more about comorbidities and how to manage them below.

Reflux | Pulmonary disease | Kidney disease | Cardiac dysfunction | Diabetes | **Hypertension**

What to expect

- High blood pressure can cause issues with organ function during CRT
- Blood pressure can drop during CRT because of weight loss and inadequate nutrition/hydration

How to manage

- Help optimize medications
- Consider adding or titrating diuretic medication
- Monitor electrolytes closely; diuretics, ACE inhibitors, and ARBs can cause electrolyte imbalance
- Consult a PCP as needed

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ACE=angiotensin-converting enzyme; ARBs=angiotensin II receptor blockers; PCP=primary care provider.

Nutrition strategies for success

It's important that patients receiving CRT maintain good nutrition habits before, during, and after treatment.

Eating well | Management | Monitoring

- Instruct patients to eat foods high in calories/protein, including adding nutritional supplements to their diet
- Instruct patients to eat 5 to 6 small meals throughout the day rather than 3 big meals
  - Explain to patients the reason why eating big meals while undergoing treatment is not advised
- Ensure patients drink fluids in between meals to prevent filling up on liquids during meals
- Encourage easy-to-swallow, high-calorie alternatives like shakes, smoothies, and whey protein
- Encourage different types of food (as tastes can change during treatment)

Foods to avoid

- Spicy foods
- Foods that can worsen reflux, including:
  - Lime
  - Caffeine
  - Chocolate
- Hard or crunchy foods, including nuts, chips, and crusty breads
- Alcohol or carbonated drinks
- Acidic foods, including tomato-based foods, citrus fruits and juices, and vinegar

Foods to consider

- Bland foods
  - Adding flavor by seasoning with herbs like oregano is recommended
- Foods that can alleviate reflux, including:
  - Pasta
  - Yogurt and ice cream
  - Applesauce
  - Mashed potatoes
  - Soft protein, like fish and eggs
- Fiber-rich foods and supplements to increase fiber intake

Nutrition strategies for success

It's important that patients receiving CRT maintain good nutrition habits before, during, and after treatment.

Eating well | **Management** | Monitoring

- Help patients proactively manage their food intake
  - Suggest patients set alarms on their phones to remind them to eat
  - Encourage patients to use a calorie tracker to get a better understanding of how much they are actually eating per day
- Reinforce nutritional guidelines for patients receiving cancer treatment, such as those from the National Cancer Institute or American Cancer Society
- Consider involving a dietitian/nutritionist if needed

Nutrition strategies for success

It's important that patients receiving CRT maintain good nutrition habits before, during, and after treatment.

Eating well | **Management** | **Monitoring**

- Evaluate patients for weight and muscle loss
  - Measure creatinine to evaluate muscle loss
  - Measure albumin levels, and increase protein intake if low
  - Increase caloric intake if weight loss is occurring

Daily calorie intake goal: 14 calories × lbs body weight (2000 calories minimum)

Daily protein intake goal: 1 g protein × kg body weight (can increase to 2 g/kg if patient has decreasing albumin levels and/or levels <3.5 g/dL)

Patient health literacy, logistics, and financials

Patient health literacy

- Assess patient health literacy, and start with simple educational information
- Provide prioritized lists (medication, nutrition, etc)
- Educate and involve the family to help retain information

Transportation and lodging

- Work with social workers and nurse navigators
- Provide information on transportation assistance (American Cancer Society, Uber, Lyft)
- Provide information on housing assistance (Hope Lodge, Airbnb)
- Ensure patients make transportation arrangements before CRT begins

Financial burden

- Facilitate interactions between patients and social workers and/or advocacy groups to identify financial aid resources

Key takeaways

- Help optimize patient health and manage comorbidities prior to initiation of CRT
- Proactively manage CRT AEs—once AEs worsen, they may become too difficult to control or reverse
- Start pain control early in the treatment process
- Assign AE management responsibilities, including early and frequent communication between medical oncology and radiation oncology teams

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