Wound Management

Author

Institution

Case 1

## Arterial Ulcer

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| 1. **Holistic assessment** | |
| Wound examination | Wound is located on lower right leg and is infected |
| Type of wound | Chronic wound |
| Cause of wound | Poor blood supply to lower right leg (detail is mentioned above) |
| Further investigation | Wound swab is taken and sent to pathology, results from pathology shows that the wound is infected. No further investigation is required. |
| Wound management principle | Debridement of necrotic tissues, improve blood circulation by providing thinner blood, proper dressing, moist wound bed, and also pain control. |
| 1. **Evaluation** | |
| Wound examination | Punched out wound with infection |
| Wound bed status | Wound bed is pale, yellow in color with sign of infection, and exudate is present. |
| Wound characteristics | According to the history wound is existed for a long time and is infected as well, it will take more time to heal.  It is located on the lower right leg where blood flow is lower as compare to the other parts of the body  Other characteristics that effects the healing process is mentioned below. |
| Wound measurement | Length: 2.1 cm  Width: 2 cm  (this calculated by sourcing link of an actual image and comparing the size of a wound to the surrounding area using ruler) |
| Condition of surrounding skin | Surrounding skin is dry and rough due to dead tissues in the area. |
| Wound exudate | Sanguineous drainage |
| Further assessment | No further assessment is needed. Although taking weight of a patient is recommended. As weight can also play a role in treating the wound and there is no information provided on the weight of this patient in this report. |
| 1. **Expectation of healing process** | |
| It takes time to heal arterial ulcer. It is located at lower part of leg, where the blood flow is apparently low. His age (77 years), history of diabetes, difficulty in mobility, and poor oral intake results in slow healing process of the wound. To overcome these obstacles, various steps and recommendations are discussed in wound and pain management section.  Age: healing of ulcer wound at this age is delayed due to angiogenesis and diminishing of hypoxia-inducible factor (Soc, 2015).  Chronic health Condition: As the patient has history of diabetes, it impairs wound healing by decreasing blood supply and by increasing chances of infection so it impairs wound healing.  Mobility: Mobility improves blood circulation so it improves healing. Patient has difficulty in moving so it affects the healing process of the wound  Nutrition: Due to poor oral intake, his body lack zinc and vitamin C it slows his healing process. | |
| 1. **Wound management Plan** | |
| Moist wound healing | Moist wound healing is must for healing arterial ulcer wound. In addition to that wound temperature should be kept warm for better management. |
| Skin & risk assessment | Skin assessment includes factors like temperature, color, pulse, hair distribution, and skin appearance  In this case all signs show decreased blood supply with dry ragged discolored skin.  Risk assessment: Arterial ulcer accounts for 5 to 20% of all leg ulcers in diabetic patient (Doyle, 2016). |
| Wound cleansing | Wound can be cleaned with water (not in excess). Cadexomer iodine ointments should be applied around the wound margins. This ointment draws out the exudate and also fights the bacteria present at wound site. |
| Pressure support and relieving devices | No pressure support and relieving devices are needed in treating this wound. |
| Prevention program | List of things that should be prevented in treating this wound are:   1. Quit smoking if the patient is smoker 2. Protect legs and feet from injuries 3. Avoid Prolonged sitting and standing 4. Avoid cold temperatures |
| Dressing product | Ketanserin ointment with moist dressing should be applied on the wound. This dressing should be changed twice a day (Forster R, 2015). |
| Secondary dressing | No Need |
| Pain management time frames | Usually arterial ulcer wound takes long time to heal. In our case due to many factors mentioned above, healing of the wound can take more time than normal or maybe it will never healed at all. In one year period, pain can be reduced to 3 times by following the step mentioned in wound cleaning and dressing product section. |
| 1. **Health education for the patient** | |
| Chronic Disease: Being a diabetic patient, his glucose level should be maintained.  Mobility: As it is hard for a patient to be mobile, he should get assistance in getting physically active. In addition physio like ultrasound treatment and compression therapy are recommended. Compression therapy will induce thermal effect which is good for wound healing  Weight: Patient should also lose weight (not provided with case study) if he is overweight.  Nutrition: Patient should increase zinc and Vitamin C intake as it helps in the healing of wound  Addition wound care: wound should be kept moist (Pálsdóttir, 2009). | |
| 1. **Pain management** | |
| Medication | Patient is already taking Endone, which is a good for relieving pain. No other medication is advised for pain management.  Although for wound management, patient should take zinc and vitamin C (Desneves KJ, 2005). |
| Frequency and dose | Dose of Endone should be remained same i.e; 10mg (tds).  Zinc - 30mg (tds)  Vitamin C - 500 mg (tds) (Daeschlein G, 2007) |
| Reason for medication | To relief pain and excelling the healing process |
| Patient’s education | As the patient is 77 years old and he lives alone in a retirement home, he or the personnel at retirement home should be educated about his condition.   1. Daily physical activity should be planned in future, because mobility plays an important role in the healing of arterial ulcer. 2. Protect the patient from any injuries in future 3. Medicines prescribed/ advised are important for his recovery 4. Smoking is very dangerous for the patient in his current condition |

## Diabetic Foot Ulcer

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| 1. **Holistic assessment** | |
| Wound examination | Located of left toe, requires debridement |
| Type of wound | Chronic wound |
| Cause of wound | Poor blood and oxygen supply to lower body due to tightening of arteries and vessels because of high glucose level. |
| Further investigation | No deep tissue infection found. A sample should be collected from the wound for culture. |
| Wound management principle | Drainage and surgical debridement, improve blood circulation and also pain control. Wound should be treated with antibiotics and proper dressing. |
| 1. **Evaluation** | |
| Wound examination | Grade 2 Open ulcer wound with no deep tissue infection |
| Wound bed status | Pale yellow outer skin, dark red from inside, no sign of exudate, with sign of infection and necrotic tissue. |
| Wound characteristics | According to the patient’s history wound is existed for a long time and is infected as well, it will take more time to heal.  It is located on left toe Other characteristics like wound size, depth, edge are mentioned below |
| Wound measurement | Length: 3 cm  Width: 3.6 cm  (this calculated by sourcing link of an actual image and comparing the size of a wound to the surrounding area using ruler) |
| Condition of surrounding skin | Surrounding skin is normal. |
| Wound exudate | Not present |
| Further assessment | A sample should be collected from wound for culture. |
| 1. **Expectation of healing process** | |
| At his age (77 years) along with the history of diabetes and poor oral intakes, wound will take time to heal wound is located at left toe, poor blood circulation may results in slowing the healing process  Age: healing of ulcer wound at this age is delayed due to angiogenesis and diminishing of hypoxia-inducible factor (Soc, 2015).  Chronic health Condition: As the patient has history of diabetes, it impairs wound healing by decreasing blood supply in the area. There is a risk of increase in infection.  Mobility: Mobility improves blood circulation which improves the healing process. Patient has difficulty in moving so it affects the healing process of the wound  Nutrition: Due to poor oral intake, his body lack zinc and vitamin C it slows his healing process. | |
| 1. **Wound management Plan** | |
| Moist wound healing | After surgical debridement provide moist wound care for healing. |
| Skin & risk assessment | Skin assessment Poor blood supply with hard skin at wound edge. Surrounding skin is normal.  Risk assessment: Risk factors includes bacteriology, wound care choices, type of debridement, and wound dressing  It should be examined whether the patient feels numbness and has he loss protective sensation. In addition foot deformity and injuries may result in additional risk.  Patient with history of diabetes has 15 to 20% risk of developing Diabetic foot ulcer (Nalini Singh, David G. Armstrong, & Benjamin A. Lipsky, 2005) |
| Wound cleansing | Treatment process should start with careful drainage and sharp surgical debridement. Debridement will not only clear the necrotic tissues but will also help clean the wound. After than wound should be cleaned with using saline. |
| Pressure support and relieving devices | No pressure support and relieving devices are needed in treating this wound. |
| Prevention program | List of things that should be prevented in treating this wound are:   1. Quit smoking if the patient is smoker 2. Protect legs and feet from injuries 3. Avoid Prolonged sitting and standing 4. Avoid cold temperatures |
| Dressing product | Silver releasing dressing |
| Secondary dressing | silicon impregnated dressing along with hyperbaric oxygen therapy |
| Pain management time frames | Wound should be frequently assessed throughout the treatment as it will take long to recover. Once the treatment is started, healing time of the wound can be estimated by taking etiology and wound size into account. With proper nutrition and antibiotics pain can be reduced during the healing process.  In our case due to many factors mentioned above, healing of the wound can take more time than normal. Pain can be reduced to 3 times by following the step mentioned in wound cleaning and dressing product section. In addition intermitted pain due to wound debridement and frequent change of dressing will remain throughout the process of healing. |
| 1. **Health education for the patient** | |
| Chronic Disease: Being a diabetic patient, his glucose level should be maintained.  Mobility: As it is hard for a patient to be mobile, he should get assistance in getting physically active.  Weight: Patient should also lose weight (not provided with case study), if he is overweight.  Nutrition: Patient should increase zinc and Vitamin C intake as it helps in the healing of wound | |
| 1. **Pain management** | |
| Medication | Same as Arterial ulcer  Patient is already taking Endone, which is a good for relieving pain. No other medication is advised for pain management.  Although for wound management, patient should take zinc and vitamin C (Desneves KJ, 2005). |
| Frequency and dose | Same as arterial ulcer  Dose of Endone should be remained same i.e; 10mg (tds).  Zinc - 30mg (tds)  Vitamin C - 500 mg (tds) (Daeschlein G, 2007) |
| Reason for medication | To relief pain and excelling the healing process |
| Patient’s education | As the patient is 77 years old and he lives alone in a retirement home, he or the personnel at retirement home should be educated about his condition.   1. Daily physical activity should be planned in future, because mobility plays an important role in the healing of arterial ulcer. 2. Protect the patient from any injuries in future 3. Medicines prescribed/ advised are important for his recovery 4. Smoking is very dangerous for the patient in his current condition |

## Pressure Ulcer

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| 1. **Holistic assessment** | |
| Wound examination | Stage 3 pressure ulcer located on patient’s sacrum bone |
| Type of wound | Chronic wound |
| Cause of wound | Due to his inability to move without assistance, patient stays in one position for a long time. This prolonged stay in one position produces pressure on the sacrum bone affecting blood circulation to lower part of the body and resulting into a pressure ulcer. |
| Further investigation | Subcutaneous tissue exposed, with no sign of infection. A sample should be collected from the wound for culture. |
| Wound management principle | Wound debridement for the removal of dead tissue.  Improve blood circulation by frequently moving the patient  Pain control  Wound should be treated with antibiotics and proper dressing. |
| 1. **Evaluation** | |
| Wound bed status | Skin loss with damage to necrosis of subcutaneous tissue.  Red granulation tissue exposed  No sign of exudate |
| Wound characteristics | According to the patient’s history, he was unaware of the wound so it was not treated in time. It may take time to heal and depends on the assistance required in changing position while lying down.  It is located on his sacrum bone  Other characteristics like wound size, depth, edge are mentioned below |
| Wound measurement | Length: 3.2 cm  Width: 3.1 cm  (this calculated by sourcing link of an actual image and comparing the size of a wound to the surrounding area using ruler) |
| Condition of surrounding skin | Maceration of surrounding skin is observed |
| Wound exudate | Not present |
| Further assessment | A sample should be collected from wound for culture. |
| 1. **Expectation of healing process** | |
| Due to his inability to move resulting in pressure and poor blood circulation, healing process will take long.  Age: healing of ulcer wound at this age is delayed due to angiogenesis and diminishing of hypoxia-inducible factor (Soc, 2015).  Chronic health Condition: As the patient has history of diabetes, it impairs wound healing by decreasing blood supply in the area. There is a risk of developing infection.  Mobility: Mobility improves blood circulation which improves the healing process. It will also reduce the pressure in the region of wound. Patient has difficulty in moving so it affects the healing process of the wound.  Nutrition: Due to poor oral intake, his body lack zinc and vitamin C. It slows his healing process. | |
| 1. **Wound management Plan** | |
| Moist wound healing | After cleaning of the wound, moist saline or iodine gauze can be used as a dressing.  Make sure that no pressure is applied in the area when the wound is dressed.  Surrounding skin should be dry |
| Skin & risk assessment | Skin assessment Full skin loss and subcutaneous tissue is visible.  Risk assessment: Although the risk of pressure ulcer should be assessed before its development, in our case the ulcer is already developed and is in stage 3.  Norton risk assessment will be used as its parameters are useful for pre and post ulcer development. Loss score should be greater than 14 (eunice park-lee, 2009).  Norton risk assessment parameters include  mobility, activity, mental condition, physical condition, and incontinence |
| Wound cleansing | Wound should not be cleaned with plain water and soap, use saline solution instead. |
| Pressure support and relieving devices | Alternating pressure surfaces which includes specially designed bed, cushion, and mattress should be used.  These devices will provide support and also act as a pressure relieving. |
| Prevention program | List of things that should be prevented in treating this wound are:   1. Quit smoking if the patient is smoker 2. Provide adequate padding while sitting 3. Surrounding skin should be kept dry as the skin maceration of skin is present 4. Patient should be proper fitted into wheelchair with padding on pressure points 5. Avoid Prolonged sitting and standing 6. Avoid cold temperatures |
| Dressing product | As there is no exudate present, silver releasing dressing should be used |
| Secondary dressing | Honey or foam dressing |
| Pain management time frames | The pain associated with pressure ulcers depends on deep infection, moisture related incontinence, pre-ulcer irritation, and friction/shear.  In our case due to pain is directly associated with the location of the wound, patient’s poor nutrition, and his inability to move will. Wound should be frequently assessed throughout the treatment as it will take long to recover. Swear pain will remain through the process of healing. Main focus is to reduce the healing time with proper care.  Pain can be reduce with time with proper care, precaution, and wound management explained in this table. |
| 1. **Health education for the patient** | |
| Chronic Disease: Being a diabetic patient, his glucose level should be maintained.  Mobility: As it is hard for a patient to be mobile, he should get assistance in getting physically active.  Weight: Patient should also lose weight (not provided with case study), if he is overweight.  Nutrition: Patient should increase zinc and Vitamin C intake as it helps in the healing of wound | |
| 1. **Pain management** | |
| Medication | Same as Arterial and diabetic foot ulcer  Patient is already taking Endone, which is a good for relieving pain. No other medication is advised for pain management.  Although for wound management, patient should take zinc and vitamin C (Desneves KJ, 2005).  Secondary medication: antibiotic should be given depending on the result from culture. |
| Frequency and dose | Same as arterial ulcer and foot ulcer  Dose of Endone should be remained same i.e; 10mg (tds).  Zinc - 30mg (tds)  Vitamin C - 500 mg (tds) (Daeschlein G, 2007) |
| Reason for medication | To relief pain and excelling the healing process |
| Patient’s education | As the patient is 77 years old and he lives alone in a retirement home, he or the personnel at retirement home should be educated about his condition.   1. Daily physical activity should be planned in future, because mobility plays an important role in the healing of pressure ulcer. 2. Proper padding should be used on pressure points. 3. Avoid lying in supine position. 4. Medicines prescribed/ advised are important for his recovery 5. Smoking is very dangerous for the patient in his current condition |

## Second Degree Burn

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| 1. **Holistic assessment** | |
| Wound examination | 2nd degree on his left hand. |
| Type of wound | 2nd degree burn |
| Cause of wound | He spilled a coffee on his hand |
| Further investigation | Not needed |
| Wound management principle | Clean gently with soap and water  If the blister is break during the treatment, it should be drained and cleaned properly  Apply petroleum based ointments |
| 1. **Evaluation** | |
| Wound bed status | Epidermis and Dermis layers of the skin are effected and the affected area is swelled up, appears shiny, surrounding are shows redness, and the area is painful to touch |
| Wound characteristics | Size of the wound is nominal, blister is formed on top layer, surrounding skin shows redness, and the wound is not deep.  Other characteristics like wound size and the nature of surrounding are mentioned below |
| Wound measurement | Length: 2 cm  Width: 1.4 cm  (this is calculated by sourcing link of an actual image and comparing the size of a wound to the surrounding area using ruler) |
| Condition of surrounding skin | Burning causes redness in surrounding skin |
| Wound exudate | Not present |
| Further assessment | No need |
| 1. **Expectation of healing process** | |
| With proper care and treatment, wound can be healed in two to three weeks period. Scar may form during the healing process depending upon the nature of skin and management plan. | |
| 1. **Wound management Plan** | |
| Moist wound healing | Dressing should be soaked in water before applying |
| Skin & risk assessment | Skin assessment Visible blister with redness in surrounding skin.  Risk assessment: Burn may leave a scar during the healing. Proper and in time treatment may reduce the risk of scar.  It the blister is break, there is a risk of getting infection. It should drained properly and should be cleaned periodically. |
| Wound cleansing | Wash gently with soap and water. |
| Pressure support and relieving devices | No need |
| Prevention program | List of things that should be prevented in treating this wound are:   1. Extreme hot temperature 2. Avoid scratching |
| Dressing product | Moist dressing with presence of saline |
| Secondary dressing | No need |
| Pain management time frames | Wound is expected to heal within 2 to 3 weeks. And pain will remaining until the wound is completely healed.  Saline dressing will reduce the pain with time. |
| 1. **Health education for the patient** | |
| 1. Educate the patient about healing process. 2. Avoid scratching 3. Wash the wound with cool with cool water (avoid cool water contact to his ulcer wounds) 4. Dressing should be changed at least twice a day | |
| 1. **Pain management** | |
| Medication | Petroleum ointment and saline dressing  No pain killer as the patient |
| Frequency and dose | At least twice a day |
| Reason for medication | To relief the pain and heal the wound. |
| Patient’s education | 1. In future, always use capped container for drinking hot beverages 2. Drink excess water as the burn causes the body to lose fluid |

Case 2

## Malignant Wound

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| 1. **Holistic assessment** | |
| Wound examination | Malignant wound on groin area. |
| Type of wound | Chronic wound |
| Cause of wound | The patient has cervical cancer. Therefore cancerous cells infiltrate the skin and the blood and lymph vessels supporting it which cause a loss in vascularity leading to tissue death causing a malignant wound on the groin area. |
| Further investigation | The wound was oozing pus and developed into a sinus,  As the main goal is to improve the quality of life, no further investigation regarding wound is required. |
| Wound management principle | The patient should be given pain killers prior to any treatment.  The patients wound are chronic hence it is important that they do not tear while dressing, therefore blood thinners like aspirin can be given.  The dressing shall be soaked in water before removal.  The wound has a very odor and is releasing puss therefore it should cleaned with saline water and frequent change of dressing is advised. |
| 1. **Evaluation** | |
| Wound bed status | Infected wound bed with moderate to high exudate with presence of sinus as well  A regular change in pads to control the blood from discharge is required.  The bed linens should also be regularly changed to avoid infection from malignant wounds puss. |
| Wound characteristics | Raised irregular margins with infected wound base and erythema all around the wound  Surrounding skin also shows signs of infection  Moderate amount of exudate also seen |
| Wound measurement | Length: 4 to 5 cm  Width: 2.5 cm  (this calculated by sourcing link of an actual image and comparing the size of a wound to the surrounding area using ruler) |
| Condition of surrounding skin | Erythema of surrounding skin is observed |
| Wound exudate | Moderate amount seen along with fouls smelling discharge from the sinus |
| Further assessment | A sample should be collected from wound for culture and sensitivity under aseptic conditions |
| 1. **Expectation of healing process** | |
| Because we are treating patient on palliative lines, so the main goal is to keep the patient pain and smell free. Since healing process in this patient is not much expected.  Improving pain management techniques and keeping the wound clean are the main goals | |
| 1. **Wound management Plan** | |
| Moist wound healing | Protection and prevention of the damage skin by controlling exudate, protecting surrounding skins by barrier ointments.  Prevention of odor management by local cleansing (saline irrigation), gentle removal of necrotic tissue. Use of topical antibiotics activated charcoal dressing.  Essential oil or other aroma therapies |
| Skin & risk assessment | Skin assessment Raised irregular margins with infected wound base and erythema all around the wound. Surrounding skin also shows signs of infection. Moderate amount of exudate also seen  Risk assessment: low immunity due to malignancy, poor oral intake, lack of self-care on account of weakness and malignant disease are the main risk factor involved that need to be kept in mind while managing the patient. |
| Wound cleansing | Cleansing of wound by saline  And cleansing of exudate by absorbent hydro fiber and absorbent cover dressings with high absorbent capacity  If exudate is still not controlled, then consider pouching or consultation with enterostomal therapy nurse. |
| Pressure support and relieving devices | Not needed |
| Prevention program | Not applicable because we giving her palliative care |
| Dressing product | hydro fiber and absorbent cover dressings with high absorbent capacity |
| Secondary dressing | Layered dressing or consultation with enterostomal therapy nurse |
| Pain management time frames | Pain management is the main goal for this patient.  Pain is of mixed etiology, monitoring of pain level and providing analgesia whether topical or systemic along with relaxation therapies and emotional support. |
| 1. **Health education for the patient** | |
| Emotional support and relaxation techniques along with spiritual healing techniques are the main helping factors for this patient. | |
| 1. **Pain management** | |
| Medication | As the patient is already taking fentanyl 200mcg and midazolam 10 mg, if needed topical pain killers can be added for local pain of the wound |
| Frequency and dose | patient is on syringe driver: Fentanyl 200 mcg + Midazolam 10 mg  and topical pain killer (sos) |
| Reason for medication | To relief pain and improve patient’s quality of life. |
| Patient’s education | Family should be explained clearly about the patient’s condition and they should also participate in improving the remaining time of her life.  They should be explained that only palliative care is being provided to this patient. |

## Venous Ulcer Wound

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| 1. **Holistic assessment** | |
| Wound examination | Venous ulcer on her leg |
| Type of wound | Chronic wound |
| Cause of wound | Venous insufficiency |
| Further investigation | Doppler ultrasound, venography, and ankle brachial index |
| Wound management principle | Primary goal in this patient is keeping the ulcer site infection free and alleviating edema of the sight.  Debridement to remove dead tissue.  Oral and topical antibiotics dressing  Surgical skin graft (since we are providing palliative care, it is less useful in this patient)  Compression therapy |
| 1. **Evaluation** | |
| Wound bed status | Infected edematous skin (wound bed not visible in the picture) |
| Wound characteristics | Infected  Erythematous  edematous |
| Wound measurement | Length: 8 cm  Width: 6 cm  (this calculated by sourcing link of an actual image and comparing the size of a wound to the surrounding area using ruler) |
| Condition of surrounding skin | Erythema and edema of surrounding skin is observed |
| Wound exudate | Not present |
| Further assessment | Not applicable |
| 1. **Expectation of healing process** | |
| Because we are treating patient on palliative lines, so the main goal is to keep the patient pain and smell free. Since healing process in this patient is not much expected.  Improving pain management techniques and keeping the wound clean are the main goals | |
| 1. **Wound management Plan** | |
| Moist wound healing | Wound debridement  Dressing (compression)  Oral and topical antibiotics dressing |
| Skin & risk assessment | Skin assessment Surrounding skin is erythematous and edematous.  Risk assessment: |
| Wound cleansing | Debridement of wound with saline solution and application of topical antibiotics along with compressing dressing will be used in wound cleaning. |
| Pressure support and relieving devices | Compression therapy  Maggots or biotherapy  Surgical skin graft |
| Prevention program | Avoid prolonged siting and standing  Protection from injury and infection  Avoid extreme temperature |
| Dressing product | Simple ascetic dressing |
| Secondary dressing | Compression dressing or therapy |
| Pain management time frames | Pain management is the main goal for this patient.  Pain is of mixed etiology, monitoring of pain level and providing analgesia whether topical or systemic along with relaxation therapies and emotional support. |
| 1. **Health education for the patient** | |
| Emotional support and relaxation techniques along with spiritual healing techniques are the main helping factors for this patient. | |
| 1. **Pain management** | |
| Medication | As the patient is already taking fentanyl 200mcg and midazolam 10 mg, if needed topical pain killers can be added for local pain of the wound |
| Frequency and dose | patient is on syringe driver: Fentanyl 200 mcg + Midazolam 10 mg  and topical pain killer (sos) |
| Reason for medication | To relief pain and improve patient’s quality of life. |
| Patient’s education | Family should be explained clearly about the patient’s condition and they should also participate in improving the remaining time of her life.  They should be explained that only palliative care is being provided to this patient.  Examine wound regularly  Elevate leg regularly |

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