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Travmaya Bağlı Fraktür Gelişimi Sonucu Multipl Miyelom Tanısı Alan Hastanın Hemşirelik Bakımı: Olgu Sunumu

Nursing Care of the Patient Diagnosed with Multiple Myeloma as a Result of Trauma-Induced Fracture Development: A Case Report

ÖZ

Multipl miyelom plazma hücrelerinin bir neoplazmıdır. Genellikle 65 yaş üstü hastalarda görülür. En sık organ hasarlarından biri kemik tutulumudur. Bu olgu sunumu travmaya bağlı 41 yaşında, farklı bir tetkik sırasında fark edilen fraktürlerin tetkiki sonucu multipl miyelom tanısı konan bir hastanın "Fonksiyonel Sağlık Örüntüleri" modeline göre gruplandırılmış hemşirelik tanılarının tespiti ve hemşirelik bakım planında değerlendirilmesi amacıyla hazırlanmıştır. Olguda, sorunlarına yönelik olarak; akut ağrı, uyku düzeninde bozulma, gereksinimden az beslenme, oral mukoz membranda bozulma, konstipasyon, yorgunluk, aktivite intoleransı, bireysel kimlikte bozulma riski, bireysel dirençte bozulma riski, korku, aile içi süreçlerde bozulma riski, enfeksiyon riski, beden imajında rahatsızlık tanıları ve bu tanılara yönelik hemşirelik girişimleri planlanmış ve uygulanmıştır. Çalışma öncesinde hastadan sözlü ve yazılı izin alınmış, veriler yüz yüze görüşme yöntemi ile toplanmıştır. Sonuç olarak; Fonksiyonel sağlık örüntüleri modeli doğrultusunda planlanan ve uygulanan hasta bakım süreci, hastanın hastalık sürecini olumsuz etkileyecek davranışlarında olumlu yönde iyileşmeyi sağlamış, taburculuğu kolaylaştırmış ve hemşirelere bakım, tedavinin etkinliği ve takibi konusunda rehber olmuştur. Bu model, hematoloji, onkoloji, palyatif bakım gibi hastaların aktif takip edilmesi gereken kliniklerde hemşirelik bakımının etkili bir şekilde uygulanması için önerilmektedir.

ABSTRACT

Multiple myeloma is a neoplasm of plasma cells. It is usually observed in patients over 65 years of age. Bone involvement is one of the most common organ damages. This case report was prepared to determine the nursing diagnoses grouped according to the model of "Functional Health Patterns" and evaluate them in the nursing care plan of a 41-year-old patient who was diagnosed with multiple myeloma as a result of the examination of trauma-induced fractures detected during a different examination. In the case, the diagnoses of acute pain, sleep disturbance, nutrition less than body requirements, impaired oral mucous membrane, constipation, fatigue, activity intolerance, risk of deterioration in individual identity, risk of deterioration in individual resistance, fear, risk of disruption in the continuity of family processes, risk of infection, discomfort with body image, and nursing interventions for these diagnoses were planned and implemented. Before the study, verbal and written consent was obtained from the patient, and the data were collected by the face-to-face interview method. In conclusion, the patient care process planned and implemented in line with the model of Functional Health Patterns provided an improvement in the patient's behaviors that might adversely affect the disease process, facilitated the discharge, and guided nurses about the care, effectiveness and follow-up of the treatment. This model is recommended for the effective implementation of nursing care in clinics such as hematology, oncology, and palliative care, where patients need to be followed up actively.

INTRODUCTION

Multiple myeloma (MM) makes up 1% of all cancers and 10% of hematological cancers. It is reported that the median age of diagnosis is 66-70 years, 37% of the patients are below 65 years of age, and only 2% are diagnosed below 40 years of age. Multiple myeloma is more common in men than women (Türk Hematoloji Derneği, 2020). Multiple myeloma is a neoplasm of plasma cells (Rogers & Rennoldson, 2020). According to the current data from the International Agency for Research on Cancer (IARC), the incidence of MM is 176,404 cases worldwide, while this rate is estimated to be 1,970 patients in Turkey (Global Cancer Observatory, 2020). The most marked symptoms of MM are bone pain due to osteolytic lesions and fatigue due to anemia. Multiple myeloma, whose etiology is not known exactly, reveals the tumor extension in the bone marrow and the development of lesions damaging the bone. While approximately 90% of MM patients develop systemic osteopenia and lytic lesions during the disease, pathological fractures occur in the vertebrae, skull, and pelvis in 60%. In the management of MM, skeletal lesions are followed up to establish the diagnosis, regulate the treatment, and evaluate the treatment response (Li et al, 2021; Spinnato et al, 2021). Chemotherapy, radiotherapy, and autologous stem cell transplantation are among the conventional treatments for MM (Ailawadhi et al, 2019). The general aim of MM treatment is to control the disease, increase the survival rate, and maximize the quality and duration of life (Dowling, Kelly and Meenaghan, 2016). Nurses are healthcare professionals who can support patients and their families in the treatment and care process and are vital in patient education. Nurses should know the disease management and treatment-related side effects, preventive measures, and supportive care strategies to increase patients' tolerance to the treatment of MM and improve their quality of life (Colson, 2015). It is necessary to plan symptom control practices that will facilitate care in MM patients, and the obtained results should be adapted to patient care. Effective symptom management will improve patients' quality of life (Morris and Marshall-Lucette, 2017). This case report was prepared to determine the nursing diagnoses of a patient, who was diagnosed with multiple myeloma as a result of trauma-induced fracture development and followed up in the hematology clinic, grouped according to the "Functional Health Patterns (FHP)" model and present them in the nursing care plan accordingly.

CASE

A 41-year-old male patient with no chronic disease presented to the emergency department with severe back pain due to falling 4 months ago. After the patient was referred to the hematology outpatient clinic following laboratory tests and examinations, he was admitted to the hematology clinic to investigate his condition. A transthoracic needle aspiration biopsy was performed, and thoracolumbar computed tomography was taken. The patient with fractures due to falling (Figure 1) and lytic lesions in his vertebrae was operated on 20.09.2021 (Figure 2). The patient was diagnosed with MM three weeks after the operation. The involvement of the 7th and 10th ribs in the bone marrow, a 13x1 cm mass in the lower lobe of the right lung (neurofibromas were detected in the pathology), and 25% compression fractures at the T_8 vertebral level on computerized tomography were detected. No surgical intervention was considered for compression fractures. After the patient was diagnosed with MM, chemotherapy treatment with bortezomib, cyclophosphamide, and dexamethasone (VCD) was started. The treatments applied in the hematology ward were planned as acylovir 200 mg tablet 2x1, bactrim 400/80 mg tablet 2x1, candimax 150 mg capsule 1x1, enox 0.4 ml injector 1x1, protonex 40 tablet 1x1, vemlidy 25 mg tablet 1x1, contramal 200 mg ampoule 2x1, duphalac suspension 2x1 scoops, and ferro sanol duodenal 567.7 mg capsule 1x1. The patient continued to receive VCD chemotherapy as 5 cycles. Corset and immobilization were recommended to the patient with neurosurgery consultation, and he was discharged 2 weeks later. After the 4th cycle, the treatment response was evaluated as an inadequate response. After the patient completed 5 cycles of VCD treatment, a new treatment plan was made. The patient was re-admitted to the hematology ward on 25.10.2021 to receive chemotherapy in the form of carfilzomib, lenalidomide, and dexamethasone (KRD) treatment. As a symptom, the patient described severe pain in the back radiating from the columna vertebralis to the ribs and increasing with movement. He had no other symptoms. On the physical examination of the patient, there was tenderness in the right lateral region of his back and severe pain in his spine. At the same time, postural disorder (kyphosis) and loss of height (shortening by 2 cm) due to the involvement of the vertebral spine occurred. He experienced fatigue and weakness. The patient's laboratory findings are shown in the table 1 below;
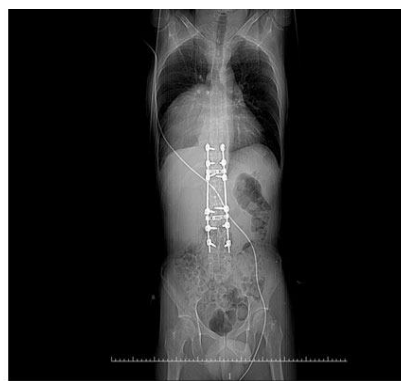

Figure1. Pre-diagnosis thoracolumbar computed tomography

Figure 2. Postoperative thoracolumbar computed tomography

Table 1. Laboratory Findings of the Case

Examination name	Tests result	Range	Tests	Results	Range	Tests	Results	Range
Plasma cell ratio	20-30%	1-2%	HGB	9.4	11-16	D-dimer	2210	0-500
CD56 ratio (body fluids)	92.6%	-	WBC	2.87	4-10	Fibrinogen	1.86	2-4
CD138 ratio (bone marrow)	96%	-	RBC	3.00	3.5-5.5	Sodium	136	136-146
CD19 ratio (bone marrow)	4.5%	-	HCT	28.2	37-54	T. protein	122.88	66-83
CD38 ratio (bone marrow)	93.8%	-	PLT	141	100-400	Calcium	10.2	8.8-10.6
CD45 ratio (bone marrow)	99%	-	MCH	31.5	-	RDW	16.1	11-16
Hematology result report	Anisocytosis	-	Vitamin B12	471	187-883	Kappa light chain (free serum)	8.46	6.7-22.4
Globulin	83.8	-	MCV	94.1	80-100			
NEU	3.04	2-7	Uric acid	7.0	3.5-7.2			
IgM	0.17	0.4-2.3	LYM	1.28	0.8-4	Beta-2 micro-globulin serum	2.91	1.090-2.530
IgG	74.8	7-16	Albumin	27.4	35-52			
IgA	0.39	0.7-4	Pre-albumin	0.13	0.18-0.45			
Urea	29	17-43	CRP	3.13	0-5	Serum immune-fixation electro-phoresis	IGG Lambda Monoclonal gammopathy was observed	
Prothrombin time	12.0	7.6-12.5	ALT	24	0-50			
INR	1.14	0.8-1.3	Iron	13	70-180			
AST	45	0-50	Potassium	4.0	3.5-5.1			
Protein in the urine	Negative	-	Creatinine	0.84	0.67-1.17	Lambda light chain (free serum)	5.85	8.3-27
APTT	32.7	21.3-36.3	Sedi-mentation 30 min	76	-	Sedi-mentation 1 hour	77	-

Guidelines that will allow to accurately identify the patient's problems and guide nurses to focus on care are needed in this patient. Nurses play important roles such as following up the general condition of patients, being versatile in care, maintaining effective communication, providing psychological support, providing education for needs, and symptom management.

Nursing Care Plan According to the Model of Functional Health Patterns

The problems in the patient were determined according to the model of Functional Health Patterns and are presented in detail in Table 2 (Belcher et al, 2020; Colson, 2015; Jeevanantham, Rajendran, Tremblay, Larivière& Knight, 2018; Kang & Choi, 2019; Lau et al. 2016; Morris & Marshall-Lucette, 2017; Özer, 2019; Rogers & Rennoldson, 2020; Wilmot& West, 2018).

Table 2. Identifying Descriptive Characteristics According To FHP

	Functional Health Patterns	Descriptive Characteristics/ Signs and Symptoms	Nursing Diagnosis
1	**Health Perception-Health Management**	Lytic bone lesions, the patient's verbal and non-verbal description of pain, a VAS score of 8	**Acute pain**
2	**Nutrition-Metabolic Status**	Mucositis and lack of appetite	**Imbalanced Nutrition: Less Than Body Requirements**
		Chemotherapy treatment	**Impaired Oral Mucous Membrane**
		Weakening of the immune system, chemotherapy, and invasive interventions	**Risk of infection**
3	**Excretion**	Decreased exercise due to bone pain/pathological fractures, opioid analgesic use, and lack of activity	**Constipation**
4	**Activity-Exercise**	Severe pain, weakness, bone marrow depression, chemotherapy, inadequate nutrition	**Activity Intolerance**
		Pain, psychological problems, sleep disturbance, weakness due to fracture in the vertebral column, and inadequate nutrition	**Fatigue**
5	**Sleep-Rest**	Pain and environmental factors	**Disruption of Sleep Patterns**
6	**Cognitive-Perceptual State**	Uncertainty and anxiety about the disease	**Risk of Individual Identity Disruption**
7	**Coping-Stress Tolerance**	Changes in mood and the treatment	**Risk of Deterioration in Individual Resistance**
8	**Self-Perception-Self-Concept**	Disease process, dependence, physical and psychological changes	**Discomfort with Body Image**
		Long hospital stay, uncertainty about the disease, insecurity, lack of information, and pain	**Fear**
9	**Sexuality-Reproduction**	Financial difficulties and failure to establish effective communication within the family	**Risk of Disruption in the Continuity of Family Processes**
10	**Value-Beliefs**	No problem	-

Health Perception-Health Management

The patient was partially dependent on his spouse in performing his daily activities. He indicated severe pain on the outer lateral side of the back due to the diagnosis of MM. The patient's pain was evaluated as '8' on the Visual Analog Scale (VAS) (between 0-10 points). A partial decrease (5) was observed in the pain score with pharmacological and non-pharmacological interventions.

Nursing diagnosis 1: 'Acute Pain' due to lytic bone lesions, the patient's verbal and non-verbal description of pain, and a VAS score of 8

Aim: To minimize the patient's pain and enable him to express that he feels relieved

Nursing interventions

1. Pain location, severity, onset time, and factors that increase and decrease it should be evaluated together with the case,

2. Unnecessary movements should be avoided, and factors that increase and decrease pain should be determined by discussing them with the case,

3. Effective pharmacological and non-pharmacological approaches in the cause, mechanism, and management of pain should be repeated in 30-minute-periods during the first 4 weeks,

4. The patient should be encouraged to talk about his pain, and his views on pain should be evaluated,

5. Daily pain assessment and the use of analgesics and doses should be taught,

6. The narcotic analgesics administered should be evaluated in terms of their side effects, and these effects should also be explained to the patient and his relatives.

Evaluation: The patient stated that his pain was relieved, and his pain score decreased from 8 to 5.

Nutrition-Metabolic Status

The patient, who stated that he consumed two main meals a day, indicated that his daily fluid intake decreased, wounds occurred in his mouth, and he had a decreased appetite recently and experienced fatigue. His score was found to be 15 according to the Oral Assessment Guide (OAG).The maximum score that can be obtained from the scale is 24, while the minimum score is 8. If the total score obtained from the scale is 8-14, it is defined as the risk of the impaired oral mucous membrane. If it is 14-24, it is defined as the impaired oral mucous membrane. Weight measurement results in four weeks were acquired as 70kg, 69kg, 67kg and 65 kg, respectively. The patient lost five kilograms in total. Total protein (122.88), albumin (27.4), and globulin (83.8) results were evaluated.

Nursing diagnosis 2: 'Imbalanced Nutrition: Less Than Body Requirements'due to Mucositis and Lack of Appetite

Aim: To ensure the intake of foods in accordance with daily nutritional requirements and activity level

Nursing interventions

1. Malnutrition signs and symptoms should be followed up,

2. Daily weight and intake and excretion follow-up, fluid and electrolyte balance, skin turgor, and muscle mass should be evaluated,

3. Laboratory values should be followed up (hemoglobin, calcium, magnesium, etc.),

4. Oral care should be done before meals to improve appetite, and calorie intake should be increased,

5. The importance of controlled exercise and not drinking a lot of water between meals should be explained,

6. Daily nutritional status should be identified, and collaboration should be provided with other nutritional support teamsand dieticians.

7. The types and amounts of foods that the patient can tolerate should be determined,

8. Attention should be paid to avoiding bad odors in the environment where the patient will eat, and oral fluid intake should be evaluated daily (mucous membrane, pulse).

9. The patient should be informed that he should consume foods that will prevent flatulence and that he should not consume caffeinated foods and beverages since they will increase the amount of urine and cause the risk of dehydration.

Evaluation: The patient indicated that he ate more regularly, and his weight was under control in the first 4 weeks.

Nursing diagnosis 3: 'Impaired Oral Mucous Membrane'due to chemotherapy treatment

Aim: To preserve and maintain the integrity of the patient's oral mucous membrane

Nursing interventions

1. The patient's oral cavity should be evaluated regularly for bad breath, lesions, pain and bleeding, edema, dry mouth and discoloration, while his tongue and lips should be evaluated regularly for dryness, edema, color, and wound,

2. The patient should not use dental floss since he has pain, gum sensitivity, and bleeding,

3. The patient should not consume acidic and spicy foods that may irritate the mouth to ensure the continuity of the oral flora and prevent infection in the soft tissue, and soft foods are recommended,

4. He should be recommended to perform oral care with 0.9% NaCl and black mulberry syrup.

5. Since the OAG score is '10,' oral care should be planned at a frequency of 4*1, and oral cavity risk factors should be determined,

6. Necessary oral care should be provided before and after meals,

7. Oral hygiene should be regularly diagnosed, evaluated and recorded, and a moisturizer should be applied to the lips when necessary.

Evaluation: The patient indicated that the wound pain in his mouth decreased, and he was relieved.

Nursing diagnosis 4:'Risk of infection' due to weakening of the immune system, chemotherapy, and invasive interventions

Aim: To prevent the development of infection and provide early intervention

Nursing interventions

1. Before entering the patient's room, hands should be washed, the patient's daily total body hygiene should be ensured, and the patient should be informed about the importance of regional hygiene after each defecation,

2. If the patient's absolute neutrophil count is $<1000/mm^3$, the patient should be taken to a private room with laminar flow,

3. Vital signs, especially fever, should be evaluated every 4 hours, and if it is $>38 °C-<36 °C$, the physician should be informed,

4. No one with a cold or sore throat should be allowed to touch or care for the patient,

5. Live plants, flowers, or pets should not be allowed in the patient's room,

6. The patient's room should be cleaned every day, and the oxygen humidifier should be changed every day,

7. In the awake patient, mouth cleaning should be provided after meals or every 4 hours (with physiological saline or sodium bicarbonate),

8. The IV entry site should be checked in every shift and carefully examined even if no discomfort (redness) occurs,

9. Care should be taken to use antiseptic solutions before each venous intervention.

Evaluation: The patient was treated in a single room due to hiscondition. The reasons why we approached the patient more carefully regarding hygiene and the reasons why his wife and patient should be careful about personal hygiene were explained one by one. During my follow-up, it was observed that they tried to be careful by asking questions about the subjectsthey did not know exactly. No symptoms such as fever, shivering, frequent urination, dysuria, dyspnea, or redness were observed. Vital signs were within normal limits. The neurological state and skin integrity were normal.

Excretion

The patient stated that while he normally defecated once every two days, he could hardly do it once a week due to the side effects of chemotherapy and current treatment. Bowel sounds were heard at 3/min. Constipation grading was grade 2.

Nursing diagnosis 5: 'Constipation' due to decreased exercise because of bone pain/pathological fractures, use of opioid analgesics, and lack of activity.

Aim: To ensure that the patient expresses that he can excrete easily every 2-3 days and defecates with normal consistency and frequency

Nursing interventions

1. The patient should be informed and encouraged about oral fluid intake,

2. Adequate fiber intake should be provided in the diet, and the patient should be directed to excrete at the same time every day,

3. The patient should be recommended to go to the toilet one hour after meals and stay there for a sufficient time,

4. He should be enabled and encouraged to acquire the habit of moderate exercise as much as possible,

5. The patient and his family should be educated on the use of laxatives,

6. Physical activity should be increased.

Evaluation: The patient indicated that he was able to go to the toilet every other day for a week.

Activity – Exercise

The patient had difficulty mobilizing since he had severe pain due to compression fractures and lytic lesions. He stated that he received help for in-bed mobilization, eating, and going to the toilet. The patient also indicated that he felt very tired and did not have sufficient energy to do his activities. Fatigue severity was evaluated according to the Fatigue Severity Scale (FAS). The maximum score that can be obtained from the scale is 50, whereas the minimum score is 10. It is evaluated as 1 point = Never, 2 points = Sometimes (once a month or less), 3 points = Usually (about a few times a month), 4 points = Often (almost every week), and 5 points = Always (almost every day). The total score was determined to be '25.'

Nursing diagnosis 6: 'Activity Intolerance' due to severe pain, weakness, bone marrow depression, chemotherapy, and inadequate nutrition

Aim: To ensure that the patient can perform daily activities without being dependent

Nursing interventions

1. The patient should be positioned appropriately, his participation in the activity should be ensured, and his reactions should be examined,

2. The patient and his wife should be informed about the reasons for the continuation of the activity,

3. Deep breathing exercises at least three times a day, walking for 1-2 minutes in the room, how to save energy and its importance should be explained,

4. The patient should be motivated to increase bone strength and ensure the continuity of mobilization,

5. He should be assisted in activities of daily living when needed, and frequently used objects should be brought closer to the usage area,

6. The patient and his family should be told that a new fracture is risky, and they should be educated on house arrangements (non-slip floor, adequate lighting, slippers that fit well on the feet, etc.),

7. The importance of protecting the area of bone lesions from trauma should be emphasized to the patient,

8. The patient should be informed about the correct use of body mechanics.

Evaluation: Although the patient had difficulty standing up, it was observed that he attempted to move in the bed.

Nursing diagnosis 7: 'Fatigue' due to pain, psychological problems, sleep disturbance, weakness due to the fracture in the vertebral column, and inadequate nutrition

Aim: To ensure that the patient has the necessary energy while performing the activities of daily living

Nursing interventions

1. Activities of daily living should be planned in order of priority, and it should be ensured that the patient performs his activities when he feels energetic,

2. An energy-saving technique should be taught to the patient and his family, and he should be told to stay away from all kinds of foods (coffee, tea, etc.) that will stimulate the sympathetic system during the hours close to sleep,

3. It should be ensured that the patient expresses himself with regard to interpersonal relationships, quality of life, and family roles that he feels inadequate due to fatigue, and his anxiety should be reduced,

4. The patient should be informed about non-pharmacological methods such as acupressure, massage, and reflexology,

5. The activities that the patient can perform without help should be determined, and he should be made aware of the activities that he is strong and capable of.

Evaluation: As a result of the interventions, it was observed that the 'FAS' score decreased from '25' to '15' at the end of the four-week follow-up. The patient reported that he had better energy use control by putting the activities he would perform in order.

Sleep-Rest

The patient indicated that he could sleep 4-5 hours at night before going to the hospital, could sleep 2-3 hours at night in the hospital due to his pain and could not feel rested.

Nursing diagnosis 8: 'Disruption of Sleep Patterns' due to pain and environmental factors

Aim: To ensure that the patient wakes up rested

Nursing interventions

1. The patient's sleep pattern and habits should be learned,

2. His pain should be controlled, and his fear and anxiety should be relieved,

3. The interventions to be performed during sleep should be minimized, and activities should be planned so that he does not sleep during the day,

4. The effect of the disease or treatments on sleep patterns should be explained,

5. It is necessary to recommend massage, effective mind-body practices, reflexology, music therapy, progressive muscle relaxation exercises, yoga, warm water bath for feet, and sleep aids in coping with insomnia,

6. Daytime sleep duration should be regulated, the number of visitors should be reduced, and the surrounding noise should be controlled.

Evaluation: The patient's pain decreased. However, his sleep pattern did not return to normal.

Cognitive-Perceptual State

The patient was uneasy, found the answers to the questions he asked about his disease inadequate, approached the events with prejudice, and felt uncertain since he was accidentally diagnosed. The patient indicated that he constantly laughed to not feel pain during intravenous procedures and was known as the laughing man.

Nursing diagnosis 9: 'Risk of Individual Identity Disruption' due to uncertainty and anxiety about the disease

Aim: To enable the patient to learn coping methods

Nursing interventions

1. The patient should be encouraged to ask questions about his health status, uncertainties, and treatments,

2. An environment of trust should be provided for the patient to explain his negative and positive emotions,

3. It should be explained that most of his problems are treatment-related side effects and are temporary,

4. The patient and his relatives should be guided to receive counseling individually or from support groups,

5. The patient and his family should be informed about correct coping mechanisms, and their quality of life should be increased.

Evaluation: It was observed that the patient was calmer at the end of the 4th week.

Self-Perception-Self-Concept

The general image of the patient was restless and irritable. His reaction to the disease and treatment interventions for the disease was just laughing. The patient stated that laughing was good for him. There were changes in body image due to the disease and treatment (shortening due to compression fractures and kyphosis). The patient stated that he was trying to get used to this condition.

Nursing diagnosis 10: 'Discomfort withBody Image' due to disease process, dependence, and physical and psychological changes

Aim: To ensure that the patient adapts to physical and psychological changes

Nursing interventions

1. The patient should be given time to express himself,

2. The patient should be helped to define his condition and problems,

3. The patient's past coping mechanisms should be defined, and information should be provided about the necessary coping methods,

4. When planning the patient's care, a team approach should be adopted,

5. It should be ensured that the patientcontacts patients who have experienced the same problem to him and managed to overcome it.

Evaluation: The patient described the changes in his body image due to his disease and evaluated the changes in his lifestyle using positive statements. He said that he had to learn to live with this condition.

Nursing diagnosis 11: 'Fear' due to a long stay in the hospital, uncertainty about the disease, insecurity, lack of information, and pain

Aim: To understand the problems that the individual fears of, provide the necessary training,and take the necessary precautions in coping with them

Nursing interventions

1. The patient should be spoken to gently and calmly so that he can verbally express his feelings, perceptions, and fears, and he should be encouraged to use relaxation techniques,

2. The patient's fear level should be monitored, the patient and his family should be informed about the treatment process,

3. Before the treatment, the patient should be informed about the treatment methods to be applied, the interventions that can be applied in coping with the disease and the side effects due to the treatment, the duration and reversibility of the treatment side effects,

4. Training should be provided on the patient's diagnosis and treatment, treatment options, symptom management, self-care, nutrition, problem-solving skills, and relaxation techniques,

5. Encouraging advice should be given to family members in order to provide moral and material support to the patient,

6. When necessary, analgesic treatment methods should be applied to the patient according to the doctor's request,

7. The patient's vital signs should be followed up regularly.

Evaluation: The patient stated that he was happy to be spoken to and that some question marks became clear, but he indicated that he would overcome his fears over time with the support of his family since he was hospitalized for the first time and he knew that the process would be long.

Role-Relationship

The patient lives with his family. He has 2 children. The patient is unable to work due to his disease. They say that they receive moral and material support from their family elders. The patient says that he has been in a state of stress, tension, fear, and uncertainty since his diagnosis, and he gives exhausted and nervous answers to hiswife's questions. The patient states that the disease affects both his workingand family life adversely.

Nursing diagnosis 12: 'Risk of Disruption in the Continuity of Family Processes' due to financial difficulties and failure to establish effective communication within the family

Aim: To support the family in maintaining its psychosocial, spiritual, economic, and physiological functions

Nursing interventions

1. The family should be helped to assess the situation they are in,

2. They should be helped to adapt to the process more easily by including the family in patient care,

3. It should be ensured that the family has a realistic point of view about the patient by providing accurate and complete information about the disease and answering their questions,

4. The family should be helped to determine the priorities in patient care and cope with the disease,

5. An environment where family members can communicate comfortably should be provided,

6. The strengths of the family in coping with the disease should be emphasized,

7. Family members should be included in the decisions to be made about the patient,

8. The family should be helped to realistically evaluate their expectations from the patient,

9. The patient and his family should be directed to the necessary institutions and resources in line with their needs.

Evaluation: The patient and his family were tried to be relieved by talking about behaviors that could disrupt family relations and the disease process, where the most uncertainty is experienced. A home visit was also made after the patient was discharged. No problem was observed.

Coping-Stress Tolerance

The patient indicated that he was psychologically very weak due to his severe pain, he was very worried that the side effects of the treatment would further affect him, and he preferred not to talk but to laugh.

Nursing diagnosis 13: 'Risk of Deterioration in Individual Resistance' due to changes in mood and treatment process

Aim: To develop and support the coping methods of the patient and his relatives

Nursing interventions

1. The psychosocial state of the patient and his family should be evaluated within individual-centered care by considering individual characteristics,

2. Anxiety and worries of the patient and his family should be reduced, and the patient's compliance with the disease and treatment should be increased,

3. The patient's cognitive state should be structured, and problem-solving skills should be evaluated,

4. The patient should be informed about the thoughts that cause him to misunderstand his condition,

5. The patient should not be allowed to isolate himself_and_should be directed to occupying himself,

6. The patient should be given the opportunity to express his thoughts and be supported in what he wants to do.

Evaluation: The patient and his wife indicated that their uncertainty decreased when they were informed during this process.

DISCUSSION

In this study, care was planned and implemented for a 41-year-old young patient diagnosed with MM, which is rare under 50 years of age, using the NANDA (North American Nursing Diagnosis Association) nursing diagnoses for his care needs. Hematology and oncology nurses, who are members of a multidisciplinary team, are important, integrative, and supportive professionals in cancer care (Kang and Choi, 2019). Diagnoses of acute pain, sleep disturbance, less nutrition than required, disruption of the oral mucous membrane, constipation, and fatigue were determined in this patient followed up in the hematology ward, and nursing interventions for these diagnoses were planned and implemented for the problems. These problems observed in the patient were found to be common with the results of similar studies (Rajkumar and Kumar, 2016). Bone pain, pathological fractures, spinal cord compressions, fatigue, and muscle weakness are frequently observed in MM patients (Jeevanantham et al, 2018), and these symptoms were similar to the symptoms observed in the patient and adversely affected his functional performance and quality of life. Fatigue is a symptom that significantly reduces the quality of life (Wilmot and West, 2019) and is identical to the problems caused by fatigue in this patient. The systematic review and meta-analysis study conducted by Lau et al. on acupuncture and acupressure methods in the management of fatigue in cancer patients determined that these methods effectively controlled fatigue(Lau et al,2016).Pain is the first complaint at admission in approximately 2/3 of patients. The most common areas of bone pain are the back, rib cage and pelvis, and the pain occurs at night (Özer, 2019, s. 545). This patient had pain on the right and outer sides of his back, especially at night. Pain occurs suddenly, usually in association with a pathological bone fracture, and the patient also described this pain. The patient took opioids in his daily treatment due to intense pain. A study indicated problems such as fear of addiction and side effects of drugs among the pain management barriers in which patients experience daily pain and additional symptoms (Belcher et al, 2020). It was observed that opioids relieved the patient a lot, but he was worried about their side effects. Bone involvement is the most common damage in myeloma. Plasmacytomas may occur in the ribs, and rib lesions may also occur (Özer, 2019). Involvement was observed in the 7th and 10th ribs in the patient, and bone lesions were detected in the vertebrae. According to another study (Kang and Choi, 2019), considering the factors that affect the quality of life of patients, psychological difficulties such as uncertainty, anxiety, and depression emerged in patients. It was observed that problems such as anxiety and uncertainty in the patient exacerbated the pain level, and a systematic review found that psychosocial factors and depression contributed to pain and fatigue (Rogers and Rennoldson, 2020). Upon examining the patient's support needs, it was observed that he had needs that could not be met in information, physical, emotional, and daily life.

CONCLUSION

Multiple myeloma is a difficult and complex process for patients and their families in terms of disease diagnosis and treatment process, and most patients face many complications during the treatment process after the diagnosis. Nursing care is a dynamic process changing according to patients' needs. The physical and psychosocial needs of patients should be constantly identified, and care should be managed with appropriate interventions. In particular, the diagnosis stage is an important step in improving patients' quality of life. In this patient, the planned nursing interventions contributed to accelerating the recovery process of the patient in need of care and facilitated his discharge. They also contributed to nurses working in the hematology ward. As a result, planning case reports within the framework of nursing models is extremely important in terms of guiding such cases to nursing care. The Functional Health Patterns Model is recommended for the effective implementation of nursing care in clinics such as hematology, oncology, and palliative care wards, where patients should be actively followed up.

What did the study add to the literature?

- In this study, the professional aspect of nursing has been revealed, and the importance of dealing with every patient who needs care and treatment with a multidisciplinary team approach has been emphasized.

- Using nursing models created by healthcare professionals may enable nurses in the clinic to identify the patient's needs early and apply effective nursing interventions in a timely and accurate manner.

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Author Contributions

Concept and design: F.A., N.K. Data collection and patient management: N.K. Data analysis and interpretation: F.A., N.K. Writing manuscript: F.A., N.K. Critical review: F.A.

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