Case Study #1

By: Briana Rapp

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Introduction

I followed this patient during her course of stay and provided nutritional care. She was diagnosed with pancreatic cancer.

Patient Profile

This Caucasian female patient, 73 years old, and was admitted on 8/31/2011. Her religious affiliation is Lutheran and is a retired health teacher.She is not married and lives alone. She quit smoking 39 years ago from smoking ½ a pack per day. Her alcohol consumption is 2 glasses of wine per night. She came into the Emergency Room with complaints of fatigue, weight loss, pruritus, and jaundice. Her height is 5'6'', weight is 205 lbs, and she has lost more than 15 lbs in the last 2 months, making her usual body weight about 220 lbs. Her medical history consists of hypertension, GERD, obesity, anemia, gall stones, chronic Coumadin usage, and arthritis.Her surgical history consists of a tonsillectomy and hemorrhoid surgery. She has no food allergies. Her family medical history consists of multiple members having heart disease and her paternal grandmother having breast cancer. In the Emergency Room, they discovered she had high potassium and high LFT's: SGOT 150, SGPT 253, alkaline phosphates 935, total bilirubin 4.4. She went through several diagnostic tests that will be discussed later.

Disease Background

This patient's diagnoses consisted of acute painless pancreatitis, painless obstructive jaundice, pancreatic cancer/adenocarcinoma metastatic to the liver, cholelithiasis, hepatic cysts, an ovarian mass, normocytic, normochromic anemia, hypertension, enlarged heart (left ventricle), hiatal hernia, mild atelectasis, hyperglycemia, duodenal ulcer with severe inflammation, and GERD. The main diagnosis the doctors were focused on was treating pancreatic cancer, which will be the focus of this section.

Definition and Pathophysiology

The pancreas is a gland that lies in the abdomen area. It is in close proximity to the liver, stomach, and kidneys. It has three parts: head, body, and tail.The head is below the liver, resting in the curvature of the duodenum; the body is the central part of the pancreas; the tail tapers upwards towards the spleen (4).The pancreas has both exocrine and endocrine properties, which is very unique. The exocrine properties of the pancreas are secreting enzymes for digestion, like lipase and amylase. The endocrine properties of the pancreas are secreting hormones that regulate the body, like glucagon and insulin. It is important to note that the pancreas has two types of tissues, which are the acinar and islets of Langerhans. The acinar cells are responsible for secreting digestive enzymes into the duodenum, making them part of the exocrine function of the pancreas. The islets of Langerhans are responsible for secretes hormones into the blood, making them part of the endocrine function of the pancreas.Pancreatic cancers affecting the endocrine properties of the pancreas are rare, "with approximately 2500 new cases in the United States each year," (3).Most pancreatic cancers affect the exocrine properties. If the exocrine functions are not able to work properly, the victim will have trouble digesting their food, especially fat because a high fat diet causes more excretions of bile and pancreatic digestive enzymes.

citation | Reference?

Due to the aggressive progression of pancreatic cancer, it is the "fourth leading cause of cancer-related mortality," and "fewer than 5% of patients survive beyond 5 years," (1).Pancreatic cancer ranks 13th in worldwide incidence and 8th in the cause of death from cancer (3).Within the pancreas, approximately 50-70% of people with pancreatic cancer develop it in the head of the pancreas; the other 30-50% develops pancreatic cancer in the body and tail (6).The site of cancer within the pancreas determines the symptoms. Symptoms like anorexia, weight loss, steatorrhea, jaundice, and pruritus are common with cancer in the head of the pancreas. Symptoms like

abdominal pain, nausea, back pain, and intermittent diarrhea are common with cancer in the body and tail (6).

Symptoms/Clinical Manifestations

There are many symptoms of pancreatic cancer, some of the more classic ones being fatigue, weight loss, anorexia, abdominal/back pain, jaundice, ascites, and glucose intolerance (1).Most jaundice in pancreatic cancer is due to a blockage in the biliary duct because the tumor is often in the head of the pancreas. Pruritus, pale stools, and dark urine often accompany jaundice because of the blockage of pancreatic ducts.Of the four stages of cancer, symptoms of pancreatic cancer usually do not appear in the first two stages. Often because symptoms appear so late, it is difficult to treat. By the time pain is a symptom, it has already spread.

Etiology

A preexisting pancreatic disorder, such as chronic pancreatitis and diabetes, will increase a person's risk of developing the cancer. Another risk factor for developing pancreatic cancer is age; risk greatly increases after age 45, with the median age for diagnosis being 63 (3).Smoking is the main risk factor for the disease, increasing a person's risk by 80% and "it is estimated that 1 in 4 cases of the disease is caused by cigarette smoking," (2,3).Obesity is another factor that increases a person's chance of developing pancreatic cancer because obesity will increase a person's chance for developing type 2 diabetes; therefore, increasing a person's chance for pancreatic cancer.

There are a few studies on how a person's diet can affect their chances for developing pancreatic cancer. In a study by Dhakal et al., they focused on physical activity and diet and the correlation between developing pancreatic cancer. Physical activity was assessed by dividing it into three categories: light, moderate, and heavy, and the participants were required to include

the number of hours per week for doing each of these. The participant's diet was analyzed using the Willett FFQ with slight adjustments. This survey included the intake frequency of certain food items (with the serving size included) before they were diagnosed with pancreatic cancer. With these surveys, their energy and nutrient intake was computed. For more in depth analysis, they divided the nutrients into food groups, such as total fat and the types of fat, fiber, fruit, and vegetables. They found that those who had pancreatic cancer tended to have diabetes, a higher fat intake, and lower fiber intake. They also tended to have less physical activity. They found that light and moderate physical activity decreased the risk of pancreatic cancer, as well as a diet high in fiber.They also discovered in their study that excessive energy intake, especially with most of it from fat, increased a person's chance of developing pancreatic cancer (9).

Another diet risk factor mentioned by both Banim (2010) and Broudo (2010) is a high red meat diet, especially red meat that has been cured and barbecued. Both articles mention heterocyclic amines (HCAs), which are carcinogenic chemicals, especially to the pancreas.Banim (2010) states that "HCAs are formed during high-temperature cooking of meat from reactions involving creatine or creatinine amino acids and sugar [Felton et al, 2007], with the amount of HCAs produced dependent on cooking times and the temperature." Broudo (2010) echoes this, emphasizing that red meat itself is not the culprit, but how it is prepared.

A diet high in alcohol (>30g/d) also contributes to a higher risk for pancreatic cancer (3). Consistent, high alcohol intake can lead to pancreatitis, can lead to pancreatic cancer. A modest intake of alcohol however, is not known to contribute to a higher risk of pancreatic cancer (2).

A low fresh fruit and vegetable intake can contribute to a higher risk of developing cancer. Folate in green, leafy vegetables, and lycopene in tomtatoes, have been suspected to reduce a person's risk for developing pancreatic cancer (3).

Treatment

Pancreatic cancer is staged very similarly to other cancers, using four stages. The stage of pancreatic cancer influences the treatment. In the beginning stages, resection would possibly be an option. This surgery is most commonly known as the Whipple procedure, which is also referred to as a pancreaticoduodenectomy. It involves removing the head of the pancreas, duodenum, proximal 15 cm of jejunum, gallbladder, common bile duct, and part of the stomach (3).This procedure can only be done in the earlier stages of the cancer and is the only way to "cure" pancreatic cancer; only 15-20% haveresectable cancer. This procedure is extremely difficult and mortality rates are approximately 4% (3). While a major portion of the cancer is resected during this procedure, other treatment will most likely be required, like chemotherapy.Broudo (2010) gives a list of contraindications for resections in order of absolute contraindications to relative contraindications. Metastases to the liver, peritoneum, omentum, or any extra-abdominal site were the number one reasons not to perform surgery. On the bottom of list, which means relative contraindications, were the involvement of the bowel mesentery and involvement of superior mesenteric vein or portal vein.Most patients with pancreatic cancer are not able to have a resection because it is often not found until the later stages when it has metastasized to another organ. If surgery is going to be preformed, it would most likely take place in stages I or II.

Chemotherapy is another option for treatment. If a patient is a candidate for resection, they may use neoadjuvant therapy, which takes place before the surgery, with the hopes that it will shrink the tumor and allow for a more successful surgery.Even patients who are on the border for being considered for resection may try neoadjuvant therapy in attempts to try and shrink the tumor, but this is rarely effective.However, it can help with obstruction or painful

symptoms of the cancer. Neoadjuvant therapy can be in the form of chemotherapy or radiation. Adjuvant therapy is a more common approach to handling pancreatic cancer. This can be used after resection or when resection is not an option and the cancer is in advanced stages (3).The standard chemotherapy medicine of choice for advanced stages of pancreatic cancer is gemcitabine (Gemzar). It is the therapy of choice because patients tend to be able to handle to side effects and are more likely to finish their treatment. More often this form of therapy helps the patient cope with the cancer rather than cure it. Other medicines are used in combination with gemcitabine, especially oxaliplatin and erlotinib (1).

If chemotherapy fails in a patient, either due to a resistant tumor or a patient unable to finish their treatment, another option is radiation therapy, which is the use of high energy rays to attack the tumor. Most often, a combination of chemotherapy and radiation is used. A few types of radiation therapy include intensity-modulated radiation therapy (IMRT), intraoperative radiation therapy (IORT), and proton therapy, but these are sophisticated methods and are not as common as chemotherapy (3).No matter if chemotherapy, radiation, or a combination of both is chosen, the doctor must take into account the effect that the treatment will have on other organs of the body not affected by the cancer, like the kidneys, bone marrow, and spinal cord. The dosing of the selected therapy has to be right, especially with radiation.

Since most pancreatic cancer cannot be cured easily, patients have the option of choosing palliative care, which consists of relieving their pain and making them as comfortable as possible for the duration of their illness or until death. When deciding on the type of medical treatment, it is important to critically analyze each patient to decide if palliative care is best or if a more aggressive treatment is appropriate.

Nutrition Intervention

Nutrition intervention with a patient who has pancreatic cancer involves educating them about how to manage their symptoms, especially if they are on chemotherapy.It also involves educating them about a neutropenic diet, weight stabilization, and possibly how to follow a diabetic diet or lactose free diet,if they develop either of these (1).

Some symptoms that patients on chemotherapy may experience are taste changes, diarrhea, or constipation. As a dietitian, it is important to educate the patient on how to manage these symptoms with nutrition. First, it is necessary to encourage the patient to eat what they can tolerate, especially foods that are high in protein and calories so they do not lose weight. Notify them that they may experience taste changes and that they are to consume what they can handle, even if it something as simple as a milkshake.Two other symptoms the patient may experience are diarrhea and constipation. Nutritionally, these symptoms can be handled with by adding fiber to the diet and drinking plenty of water. Giving the patient materials about foods that are high and low in fiber can assist them in knowing what to choose.

Suggestions to help them consume the calories they need are to eat 5 smaller meals a day that are high in protein and calories. Weight loss is very common with chemotherapy and pancreatic cancer, so the patient needs to know that they need to maintain their weight. Losing weight during this time is associated with a lower survival rate (2).Not only is losing weight caused by a decreased calorie intake, but also with "malabsorption and altered metabolism," (2). The malabsorption arises due to the tumor blocking the pancreatic duct or damaging the pancreatic tissue. The altered metabolism arises because the patients with pancreatic cancer are in a state of hypermetabolism due to "pro-inflammatory cytokines, neuroendocrine stress hormones and tumor specific factors," (2).It is likely the patient will be prescribed pancreatic enzyme replacement therapy (PERT) medication, which will help the patient with malabsorption

problems and help them maintain their weight more effectively. In addition, they may be prescribed lactase tablets to help with lactose intolerance. Giving the patient a list of foods high in lactose will help them make better choices.

Diabetes can be developed with pancreatic cancer, or lead to pancreatic cancer. It is important to ask the patient if they have dealt with diabetes in the past or are new to it, so you know how to educate them. Controlling their diabetes is especially important with pancreatic cancer.

If the patient with pancreatic cancer is on chemotherapy, then it may be beneficial to educate them on a neutropenic diet. This consists of proper food handling and choosing foods that are less likely to cause a bacterial or viral infection. The chemotherapy suppresses their immune system, so they are not as able to fight off infections. Fresh fruits and vegetables may have bacteria on them that could cause infection in a person with a suppressed immune system. Therefore, the patient must thoroughly cook their food, not eat outdated food, and very thoroughly wash fresh fruits and vegetables. It is still important to encourage fruits and vegetables, but they need to make sure they are safe for consumption before eating them.

For a patient with pancreatic cancer, it may benefit them to choose foods that are lower in fat. While they do need more calories to sustain them, choosing higher fat foods less often will put less stress on their compromised pancreas. For example, limiting fast food and saturated fats,are two examples of foods they want to choose less often. It is best to eat a balanced meal, one that combines protein, carbohydrate, and fat, rather than one that is fat concentrated.

Some patients may find it difficult to intake as many calories as they need. Recommending a nutritional supplement may be effective in this case. It is best to work with the patient to find out which ones work best for them. Also, there are times when the dietitian may

need to write or suggest total parenteral nutrition; this would most likely be after they have had the Whipple procedure because part of their duodenum will be resected. They may need TPN for a short time until bowl sounds return.

Prognosis

According to Broudo (2010), "Pancreatic cancer is aggressive and has a notoriously poor survival rate." The literature does not give those who have pancreatic cancer a good prognosis; many patients receive a "delayed diagnosis," meaning the cancer has spread to other organs, which makes resection not likely. Because pancreatic cancer is normally caught so late due to delayed or nonspecific symptoms, patients are usually already on the decline and the cancer is not able to be cured (meaning resected)—"only 10-15% of pancreatic cancer cases are caught early," (3).In patients where the cancer has spread to nearby organs, most are given approximately 8-12 months to live; even with treatment, "more than 90% of patients die within a year of diagnosis," (3).Knowing the risk factors for pancreatic cancer is extremely important because the cancer must be caught early in order to have a favorable diagnosis.

Application to patient

Initial diagnosis

This patient was initially diagnosed with acute painless jaundice with an obstructive pancreatic mass. The abnormal liver function tests led to more intensive testing, which led to her diagnosis of an adenocarcinoma of the pancreas, metastatic to the liver and cholelithiasis. In addition, an ovarian mass was found as well as a large hiatal hernia and duodenal ulcer. She also developed new onset hyperglycemia.

Current Admission

Diagnosis

This patient's current diagnoses are adenocarcinoma of the pancreas, metastatic to the liver with biliary obstruction, an ovarian mass possibly metastatic from the pancreas, elevated

bilirubin resulting in painless, obstructive jaundice, duodenal ulcer with severe inflammation, acute painless pancreatitis, new onset hyperglycemia, hiatal hernia, hepatic cysts, hypertension, mild atelectasis, enlarged heart with thickening of the left ventricle consistent with left ventricular hypertrophy, cholelithiasis in gallbladder, but none in the common bile duct, GERD, and normocytic normochromic anemia.

Diagnosis procedures with interpretations of results

In the ER, this patient's liver function tests were abnormal, especially alkaline phosphatase (ALP), which is the "most sensitive test to indicate metastatic tumor to the liver," (5). Other LFT's that were of concern were SGOT, SGPT, and total bilirubin. In addition, this patient's pancreatic laboratory values were of concern, especially the pancreatic cancer markers. Her CA 125 was 47.5 (normal is <33 U/mL), which can not only indicate pancreatic cancer but ovarian cancer as well. Her CA 19-9 was 3,539 (normal is <21 U/mL), which is a tumor marker for pancreatic cancer.

Due to her laboratory values being of concern, several other diagnostic tests were done. She had an endoscopic retrograde cholangiopancreatography procedure (ERCP), which is sending a scope through the esophagus to the biliary system to look for abnormalities. They managed to find a large hiatal hernia and giant duodenal ulcer with inflammation causing partial obstruction of the second portion of the duodenum. Another test done was a percutaneous transhepatic cholangiography (PTC), which examines the liver and bile ducts by injecting dye into the ducts to see the contrast of blockages using radiologic technology. They managed to find diffuse dilation of the right and left hepatic ducts and its branches along with the proximal common bile duct with obstruction of the distal common bile duct. Also with this procedure, they were able to place an internal/external biliary drainage catheter and stent.

A CT scan of the abdomen and pelvis revealed a mass in the inferior aspect of the pancreatic head inseparable from the adjacent duodenum with inflammation and edema. It also showed regional adenopathy (swollen lymph nodes) within the root of the mesentery at the level of the duodenum and inferior pancreatic head, a left ovarian mass, an extra hepatic biliar tree obstruction, and three hypoattenuating lesions involving the liver. In addition, a needle liver biopsy was done and showed the adenocarcinoma.

Treatments

The medical treatment for this patient is chemotherapy using a gemcitabine-based regimen. She has also received blood and plasma transfusions. The surgical treatment is placement of a 10 French internal/external biliary drainage catheter for liver drainage and a stent placement. A port-a-cath was placed for chemotherapy before discharge.Medication treatment consists of several medications, some of which the dietitian needs to be aware of. Carvedilol is used to treat congestive heart failure and hypertension and can cause diarrhea. Cyproheptadine is used as an appetite stimulant, antihistamine, or antipruritic and can cause dry mouth/throat. Hydralazine is used as an antihypertensive, a vasodilator, or to treat congestive heart failure and cause anorexia, edema, nausea/vomiting, or diarrhea. She is on insulin (humalog and lantus), which is being used for her hyperglycemia and iron sucrose, which is for her anemia. Lactulose is used to treat high ammonia levels or as a laxative. Omeprazole is used to as an antiulcer medication and is a proton pump inhibitor, which can cause diarrhea; pantoprazole is also a proton pump inhibitor.

Nutrition Care Process

Nutrition Assessment

Diet order

Her diet order began as mechanical soft and then changed to NPO for her procedures. It progressed to a regular diet the day she was discharged.

Anthropometrics

She is 73 years old, 5'6'', and weighed 93 kg upon admission. Her IBW is 59 kg, putting her at 158% IBW. Her BMI is 33, which is classified as obese. Her ABW is 70 kg. Upon talking with the patient, I discovered that her usual body weight is 100 kg and that she has experienced a weight loss of 15 lbs in 2 months; this information from the patient classifies her as a severe weight loss and means she lost 7% of her body weight in the last 2 months. I estimated her nutrient needs for maintenance. Using her ABW, I used 30-35 kcal/kg to come up with 2,100-2,450 calories per day. Using her ABW, I used 1.3-1.6 g/kg of protein to come up with 91-112 g per day of protein. Her fluid needs are1 mL per kcal.I did not calculate the fat needs for the assessment, but sources recommend 45-50 g/day. The composition of this patient's diet would be as follows: 63% carbohydrate, 19% fat, and 17% protein.

Biochemical Labs

*underlined and bold are labs contributing to this patient's diagnosis.

*red indicates a lower than normal lab value

*green indicates a higher than normal lab value

Labs	8/31	9/1	9/2	9/3	9/4	9/5	9/6	9/7	Normal
RBC	3.01	2.78	2.91	2.74	2.89	2.79	2.67	3.54	4-5.2 m/uL
Hgb	8.4	7.7	8	7.7	8.1	8.0	7.6	10.1	11.5-15.5 g/dl
Hct	26.5	23.2	25.1	23.7	25.8	25.3	24.4	31.5	34.5-46.6%
CEA		98.5							<5 ng/mL
Lipase	1351	1095			730				22-51 IU/L
CA 125			47.5						<33.0 u/mL
CA 19-9		35394							<21.0 u/mL
Amylase	852								28-100 u/L
CRP					4.7				0-.7 mg/dl
BUN	19	15	10		7	7	6		10-26 mg/dl
Creatinine	1.12	1.03	.82		.85	.75	.74		.5-1.24 mg/dl
Sodium	128	131	135		139	136	140		136-149 mEq/L
Potassium	4.8	3.7	3.8	3.4	3.3	3.8	3.8		3.5-5 mEq/L
Chloride	98	101	104		106	104	105		99-110 mEq/L

CEA (carcinoembryonic antigen) is present in the fetus, but it is also found in people with various types of cancer, including pancreatic cancer. It is also high in benign diseases, like diverticulitis and cirrhosis, and in chronic smokers. CEA is used to determine prognosis and the effectiveness of treatment. If it is slightly elevated, then the cancer is likely to be in the beginning stages. If it is drastically increased, the cancer is likely to be in later stages. CEA is useful in determining the effectiveness of treatment because if it decreases with treatment, then the treatment is working.

The CA-125 tumor marker is very effective in detecting ovarian cancer. Like CEA, it can also be used to determine the effectiveness of treatment. CA-125 can also be elevated in benign diseases like pancreatitis and cirrhosis. Smoking and recent surgery within 3 weeks of testing can also cause increased levels.

CA 19-9 tumor marker is used for diagnosis and evaluation of treatment in people with pancreatic or hepatobiliary cancer. Signs that would dictate pancreatic cancer with elevated CA

19-9 are the presence of a mass or biliary obstruction. Symptoms that would dictate hepatobiliary cancer with elevated CA 19-9 is ascites and jaundice.

Amylase and lipase are both produced in the acinar cells of the pancreas. Elevated levels of these can be due to damage to the acinar cells or obstruction in the pancreatic duct. They usually go hand in hand when elevated and can be a sign of acute pancreatitis. Lipase is different from amylase however in that it remains elevated for a longer period of time and is more directly associated with acute and chronic pancreatitis. Amylase can be elevated due to other reasons and is not specific to pancreatic disorders.

Labs	8/31	9/1	9/2	9/3	9/4	9/5	9/6	9/7	Normal
AST	150	145	146		126	107	95		0-40 IU/L
ALT	253	219	193		168	148	118		0-40 IU/L
ALP	935	851	849		782	755	696		30-100 IU/L
Bilirubin, total	4.4	4.1	4.4		5.0	4.9	4.9		.2-1.5 mg/dl
GFR	48	52	48		65	76	77		60-999
Glucose	428	330	384	290	338	241	197	187	70-125 mg/dl
Magnesium		2	2	2.2	2.1	2.2	2.0	2.2	1.8-2.6 mg/dl
Phosphorus		3.3						3.6	2.5-4.3 mg/dl
Potassium	4.3	3.7	3.8	3.4	3.3	3.5	3.5		3.5-5 mEq/L
Activated PTT	50.8		48.2	75.5	50	44.1	49.7		24-36 seconds
Protein, total	5.4	5.6	6.1		5.6	5.8	6.0		6-8.2 gm/dl
Albumin	2.9	2.6	2.8		2.8	2.6	2.7		3.2-5.5 gm/dl
Carbon Dioxide	19	20	24		23	24	25		24-31 mEq/L

AST (aspartate aminotransferase, aka SGOT) is used to identify coronary occlusive heart disease or hepatocellular diseases. In acute hepatitis, levels can be 20 times higher than the normal levels. In extrahepatic obstruction, like a gallstone, levels can be 10 times higher and then quickly fall. Inflammation, burns, trauma, and acute pancreatitis can also cause AST levels to rise.

ALT (alanine aminotransferase, aka SGPT) is used to detect liver disease and is generally very specific for this. ALP (alkaline phosphatase) is used to detect liver and bone disorders. ALP is the best test to determine if a tumor has metastasized to the liver.

Bilirubin can be measured as unconjugated, indirect bilirubin or conjugated, direct bilirubin. Total bilirubin is the combination of both of these. Indirect bilirubin is measured before heme (biliverdin) is metabolized in the liver and can signify a hepatocellular dysfunction, like hepatitis. Direct bilirubin is measured during or after entry into the liver and can be an indication of a blockage in the bile ducts, like gallstones. Jaundice is elevated bilirubin and can be caused by a hepatocellular dysfunction or a blockage in the biliary ducts.

(5)

Diet History

Her usual diet is regular. She quit smoking 39 years ago after having smoked for several years at ½ a pack per day. She admits to drinking several drinks per night. She does all the cooking and shopping for herself.

Previous MNT, instruction, outcome, compliance

This patient is newly diagnosed with pancreatic cancer; therefore, she has not had any previous nutrition education on this topic. However, she does have a history of chronic hypertension a month ago and was hospitalized for a pulmonary embolism in Colorado recently, where she received Coumadin. She then started developing increasing fatigue, weight loss, pruritus, and jaundice, all symptoms of pancreatic cancer, which is what brought her to the ER.Other past medical history includes a tonsillectomy, hemorrhoid surgery, GERD, obesity, anemia, and arthritis.

Assessment of level of nutritional compliance

The patient understood the education and she has much support from family and friends.

Nutrition Diagnosis, including PES

I classified my patient as severely compromised. My PES was increased nutrient needs related to pancreatic cancer as evidenced by the start of chemotherapy and a weight loss of 15 lbs in the last 2 months.

Nutrition Interventions/Care Plan

My recommendations were to educate the patient on nutritional management during chemotherapy and the honor the patient's food preferences. My goals were that this patient will meet more than 75% of her estimated energy needs, her PO intake will be more than 75% of her needs, and that the patient will be able to implement chemotherapy nutrition management recommendations successfully. I also referred this patient to the diabetes educator.

Monitor and Evaluation of Patient's Response to Care Plan

The patient understood my education and had no questions. I gave her handouts to take with her.

Summary/Conclusion

This patient received an unfortunate diagnosis, but had much social support. Nutrition education was provided and was the main plan of action. This patient's prognosis was not known and it is not possible to know how she did with her chemotherapy because she was discharged.

Personal Impressions?

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