Clinical Case Study

Plan of Care Date- 11/4/16- 11/14/16

University of Saint Joseph

November 18th, 2016

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**Assessment**

Anthropometric

Based on the patient’s weight history on 12/15/15 patient was 246 pounds, patient weight fluctuated from 246-260 from December 2015 to October 2016. On 10/25/16 patient weight was 243 pounds, which is his usual weight. At current admission on 11/1/16 patient weight was 231 pounds, demonstrating 12-pound (5%) weight loss in one-week period.

% Weight Loss = [1- (Current Body Weight / UBW)] x 100

% Weight Loss = [1-(231/243 lbs.)] x 100

% Weight Loss = 0.05 x 100

**% Weight Loss = 5%**

This weight loss was partially due to emesis multiple times per day to relive fullness. Patient admission weight on 11/1/16 was 105 kg (231 pounds), patient is 95% of usual body weight (calculations below).

%UBW = (Current Body Weight / UBW) x 100

%UBW = (231 lbs. / 243 lbs.) x 100

**%UBW = 95%**

Patient measured upon admission to be is 68 inches tall. Patient current BMI is 35.1 kg/m2 (calculations below).

BMI = wt. (kg) / ht. (cm)2

BMI = [(231 lbs. / 2.2 kg) / (68 in. x 2.54 cm)2]

BMI = 105 kg / (172.72cm)2

BMI = 105 kg / (1.72)2

**BMI = 35.1 kg/m2**

Nutrition Focused Physical Findings

Patient overall appearance is obese. Skin is intact, warm and dry with no wounds noted upon admission. In relation to the digestive system on admission the patients stomach was distended and rounded with hypoactive bowel sounds. Last bowel movement was on 10/24/16 and patient has been constipated. Since admission no further changes stomach is soft, rounded, and non-tender with distention. Nasogastric tube was placed (11/1/16) for low wall suction. Nasogastric tube was removed (11/11/16). Gastro-jejunal feeding tube place (11/9/16). Skin status changed as patient had surgical incision on abdomen (11/9/16).

Biochemical Data, Medical Tests and Procedures

Patient had computerized tomography (CT) scan completed (11/2/16) which found concentric thickening of the gastric antrum with marked dilation of the stomach with constrictive tumor and resultant gastric outlet obstruction.

Upper endoscopy (EGD) completed (11/7/16) to asses if patient is a candidate for stent placement depending if the obstruction is a stricture or a tumor blockage.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Lab  | Reference Range | Value on 11/1/16 | Value on 11/5/16 | Value on 11/10/16 |
| BUN | 8-23 mg/dL  | 21↓ | 6 ↓ | 7 ↓ |
| Creatinine | 0.6–1.2 mg/dL | 1.4 ↑ | 0.6 ↓ | 0.6↓ |
| Phosphorus | 3.5-5.0  | 4.1 | --- | --- |
| Glucose | 70-99 mg/dL | 210 ↑ | 138↑ | 170 ↑ |
| Sodium | 135- 145 | 141 | 141 | 137 |
| Albumin | 3.5-5.0 gm/dL | 3.9 | --- | --- |
| Hemoglobin | 14.6 – 17.5 g/dL | 11.7 ↓ | 9.4 ↓ | 10.3 ↓ |
| Hematocrit | 41-51% | 36.3 ↓ | 30.7 ↓ | 33.2 ↓ |
| Potassium | 3.5-5.0 mEq/L  | 3.7 | 4.1 | 4.3 |
| Chloride | 98-107 mEq/L | 96 ↓ | --- | 106 |
| Carbon Dioxide  | 23-29 mEq/L | 33↑ | --- | 25 |
| Calcium  | 8.5-10.2 mg/dL  | 9.2 | --- | 7.8↓ |
| WBC  | 4-11 x 109/L  | 10.9 |  7.4  | 14.8↑ |
| RBC  | 4.7-6.1 cells/mcL | 4.36↓ | 3.55 ↓ | 3.94↓ |
| Magnesium | 1.7-2.2 mg/dL | 2.3 ↑ | ---- | --- |

BUN levels that are low are not common and are not usually of concern. A cause of these low levels are possibly related to the malnutrition of the patient, but there are multiple contributing factors to these low lab values.1

Creatinine levels were originally elevated when the patient upon admission then the creatinine levels dropped. The patient has a past medical history of hypertension which is found to affect creatinine levels. Also with the patient’s gastric cancer, this can also contribute to them being abnormal or there could be dysfunction of the kidneys.1

Glucose levels that are elevated can be due to many factors including the patient being in a chronic disease state and therefore it is expected the patient would have consistently elevated blood glucose levels.1

Hemoglobin is decreased because of the chronic disease of cancer and protein-energy malnutrition.2 With hemoglobin, hematocrit and RBC all being low this can be a sign of anemia. The patient did not have bleeding in the gastrointestinal tract, so this is ruled out from the low hemoglobin levels. Since the patient has malnutrition they may also have deficiencies in iron, folate or vitamin B12.

Hematocrit is decreased because of general dehydration of the patient along with signs of anemia. With hemoglobin, hematocrit and RBC all being low this can be a sign of anemia.1

RBC are also low because of possible anemia, but more likely because of the patient’s gastric cancer diagnosis they can be decreased.1 The general decreased immune function the patient has due to chemotherapy is likely to affect his red blood cell count.

Clinical History

*Personal/ Social History*

Patient is 75-year-old African American male who is married, and lives with wife at home. Patient occupation unable to be obtained. Patient is mobile without any assistive devices. The patient’s cognition is good. The patient has Blue Cross Blue Shield and Medicare for health insurance. The patient has no expressed religion. The patient has all of his own teeth, has no chewing problems and therefore does not have dentures. The patient does not have hearing aids and the patient does not wear glasses.

*Medical/ Health History*

Patients past medical history include chronic constipation, gastro esophageal reflux disease, hypertension, hyperlipidemia, glaucoma, anemia, distal gastric cancer (of the distal gastric stomach), and deep vein thrombosis. Patient has history of gastric cancer from 2011 status post hepaticojejunostomy. Patient past biopsies were positive for metastatic adenocarcinoma which is cancer that starts from the cells in the innermost layer of the stomach.3 The oncologist stated in medical report the survival of less than 1 year based on the advanced stage of the cancer. Patient had past surgical history of gastrojejunostomy with billroth II (with an un-reported year), biopsy (8/24/14) of calciform ligament and peritineium and laparoscopy with mini-laparoscopy (8/26/14). The gastrojejunostomosy is the process of a partial removal of the stomach that reconstructs the proximal end of the jejunum to the distal end of stomach.2 Patient is currently on chemotherapy and his last dose was within the week (no radiation). Patient on docetaxel (35 mg/m2) and irinotecan (50 mg/m2) on cycle 9 day 1 of 21-day cycle previously to being admitted.

The patient’s primary diagnosis is gastric cancer. The diagnosis was completed in 2011. Most patients who are diagnosed with gastric cancer are symptomatic and by the time they are diagnosed they have an advanced incurable disease due to the progression of gastric cancer.4 It has been shown that there are specific factors that increase the risk of gastric cancer which include infection of H. Pylori, smoking, intake of highly salted foods or inadequate number of micronutrients.5 Symptoms of gastric cancer includes weight loss, persistent abdominal pain, and reduced strength, nausea, or early satiety when diagnosed.4 Malignant neoplasms in the gastrointestinal track can lead to malnutrition due to excessive blood loss and protein loss because of an obstruction of a tumor, and therefore cause mechanical interference in absorption of nutrients and needed calories.5

There are multiple tests that can be completed to diagnosis gastric cancer. The first is through tissue diagnosis with a gastrointestinal endoscopy. The use of early upper endoscopy can be associated with higher rates of detection of early gastric cancer.4 When performing an upper endoscopy all lesions should be evaluated by a biopsy to stage the tumor. It has been proven that multiple biopsies of smaller benign-appearing gastric ulcers is the most successful in diagnosing.4 There is another technique which is a barium study that is not as effective in diagnosing the severity of gastric cancer. Barium studies are able to identify malignant gastric ulcers and infiltrating lesions but there have been as many as 50% of cases with false positive readings.4

There are two major classifications for gastric cancer which include the Japanese classification and the other developed by the American Joint Committee on Cancer (AJCC) and the International Union Against Cancer (UICC) that is used in the western hemisphere. This staging system is based upon three component including tumor, node and metastasis classifications. The tumor is dependent on the depth of the tumor, not the volume or surface area of the tumor, and the node is dependent upon the number of positive lymph nodes.4 Patients who have gastric cancer stages I through III after preoperative testing are potentially curable. With patients who have a greater involvement of nodes in their diagnosis it is important for them to be referred for a multidisciplinary evaluation for the best treatment strategy. With patients with advanced stage IV gastric cancer they are referred for palliative therapy depending on both their medical status and wishes.4 There are few cases of gastric cancer that unable to be resected including the presence of distant metastases and invasion into major vascular systems such as the aorta.4 Depending on the stage of cancer, it can affect nutritional status to a varying degree. In terms of nutritional status, cancer is associated with weight loss, poor oral intake and therefore this can really affect the patient receiving the necessary calculated nutrients. A more advanced stage of cancer would cause more issues with decreased nutritional status and possibly malnutrition. If the patient is undergoing chemotherapy or radiation for gastric cancer this can cause many challenges related to nutrition and receiving adequate nutrient intake such as early satiety, unable to self-feed, decreased appetite, taste aversion, metallic taste from metal utensils, sensitivity to temperature of foods and sensitivity to smells to name a few that patients may experience.

The secondary diagnosis for the patient was a gastric outlet obstruction (GOO). A GOO is defined as a clinical syndrome characterized by “epigastric abdominal pain and postprandial vomiting due to mechanical obstruction”.6 GOO involves duodenal or extra-luminal disease, pancreatic adenocarcinoma with extension to the duodenum or the stomach is a major common cause of GOO, then followed by gastric cancer, gastric lymphoma, advanced gallbladder carcinoma or malignancy in the duodenum.6 The most common signs and symptoms include nausea or vomiting, epigastric pain, early satiety, abdominal distention, and weight loss. The patient experienced many of these symptoms including, vomiting, epigastric pain, and weight loss. The onset of symptoms depending on the reason for obstruction.

To make a GOO diagnosis it may completed from clinical features and physical examination along with radiologic evaluation or endoscopy evaluation.6 The physical evaluation that can be completed includes auscultation splash when a stethoscope is rested upon the upper abdomen and while the patient is rocked back and forth at the hips there will be a “splashing” sound which is reflective of possible gastric material.6 When completing a diagnosis, the laboratory tests may appear normal, but used to look at electrolyte abnormalities such as hypokalemia or hypochloremia.6 Another laboratory testing that can be completed is a serum gastrin level which is normally elevated due to the distention-induced gastrin release in the stomach. There are many types of radiological tests that can be used to diagnose a GOO. A CT scan can be completed which can reveal gastric distention along with retained fluid in the gastric lumen. In addition to a CT, the CT scan can have contrast added to provide clues of the underlying etiology of the obstruction, although the results are non-specific it is able to continue with further testing to find the source of the problem.6 The patient had a CT scan of the abdomen and pelvis done with IV and oral contrast (11/2/16.) The CT scan found concentric thickening of the gastric antrum with marked dilation of the stomach consistent with constrictive tumor and resultant gastric outlet obstruction. From this CT scan, further testing was completed with an EGD (upper endoscopy) completed (11/7/16) to better evaluate if the patient is a candidate for stent placement to see if it is a stricture verses a tumor blockage.

The best treatment for GOO is to receive nothing by mouth and to receive adequate fluids and electrolytes through IV fluids and have a nasogastric (NG) tube placed for the removal of gastric juices and secretions in the stomach. It is important to have the NG tube placed to reduce the risk of aspiration. Also it is suggested that parenteral nutrition should be started early if definitive therapy is not pending in the medical plan.6 There are treatment options that are based upon the etiology of the obstruction. Some options include stenting, chemotherapy, endoscopic balloon dilation, or surgery. At this time from when the data was collected for the patient, the patient’s obstruction has not been addressed in the medical plan, but the patient is still in the hospital to address the obstruction. The nutritional consequence of the medical diagnosis is that if the obstruction is large enough this may cause the patient nutritional status to decrease due to the inability of passing food through the obstruction. Therefore, in the case of the patient, the patient got a gastro-jejunal tube placed for enteral nutrition and thin liquids were then introduced. Depending on the obstruction, the treatment and diet modification would differ patient per patient, specialized care is very important.

*Medications*

Home Medications

|  |  |  |  |
| --- | --- | --- | --- |
| Medication | Function | Effect on Food Intake, Nutritional Status, oral, GI and blood  | Interpretation of Medication (why patient is on medication)  |
| amlodipine (Norvasc) | Antihypertensive  | Take with food to decreased GI distress. Decreasing calories may be recommended. May experience dysphagia, nausea, cramps. Avoid natural licorice.7  | Patient was on medication to control their blood pressure. With a past medical history of hypertension, this medication is used to control blood pressure.  |
| Bisacodyl (dulcolax) | Stool softener/ laxative  | It should be take with a diet that is higher fiber and 1500-2000 milliliters of fluid per day. This medication alters the intestinal absorption of water and electrolytes. Side effects include bitter taste, throat irritation and nausea when in liquid form. 7 | Patient was on medication to assist in helping him have a bowel movement. The patient has a past medical history of chronic constipation and it is important to have a bowel regimen in place. |
| Cholecalciferol (vitamin D3) | Vitamin and calcium regulator  | Increases calcium absorption. May experience dry mouth, metallic taste, nausea, vomiting, constipation and diarrhea. 7 | Patient was on medication to prevent osteoporosis in adults. With age as a factor this is recommended in older adults as a preventative medication.  |
| Coenzyme Q10 | Antioxidant, and enzymatic cofactor | Take with meals containing fat to increase absorption. Prolongs antioxidant effects of vitamin E decreases appetite. May have side effects of gastritis, nausea, diarrhea. 7 | Patient was on medication to treat cardiovascular disease. With a past medical history of hypertension this medication is used for that.  |
| Docustate sodium (colace) | Stool softener, laxative  | It should be take with a diet that is higher fiber and 1500-2000 milliliters of fluid per day. This medication alters the intestinal absorption of water and electrolytes. Side effects include bitter taste, throat irritation and nausea when in liquid form. 7  | Patient was on medication to assist in helping him have a bowel movement. The patient has a past medical history of chronic constipation and it is important to have a bowel regimen in place.  |
| Fondaparinux (arixtra) | Anticoagulant  | Important to avoid herbal products with antiplatelets/ anticoagulation effects such as ginger, garlic, ginseng. Avoid Saint John’s Wart. And be cautious with the consumption of grapefruit/ related citrus. May experience abdominal pain, oropharyngeal pain, toothache, dyspepsia. 7 | Patient was on medication to assist with proper coagulation of his blood. The patient had a past medical history of deep vein thrombosis to prevent from clots forming.  |
| Multivitamin | Supplement  | No serious side effects. Some minor side effects include upset stomach, headache. 7 | Patient on multivitamin to supplement nutritional deficiency that may be caused from chemotherapy.  |
| Nystatin (mycostatin) | Oral candidiasis treatment | Take supplement as directed and retain oral drug in the mouth as long as possible. May cause gastrointestinal distress, nausea, vomiting, stomach pain, diarrhea. The drug is not absorbed in the gastrointestinal tract. 7 | Patient was on medication to assist with oral thrush related to cancer and radiation. Since the patient is undergoing radiation currently he has a weakened immune system.  |
| Ondansetron (Zofran) | Antinauseant | Drug should be taken 30 minutes before chemotherapy. It can cause dry mouth, abdominal pain, constipation, diarrhea. 7 | Patient was on medication due to being on chemotherapy for his cancer. The patient was currently receiving chemotherapy and this was used to help reduced his nausea.  |
| Sucralfate (Carafate) | Antiulcer  | Patients should have a bland diet that should be taken separately from anti-acid medication. Can cause decrease in pepsin activity and cause constipation and diarrhea. 7 | Patient was on medication to decrease his reflux symptoms. The patient had a past medical history of GERD and this was used to help reduce it.  |
| Fennel seeds | Antiulcer | Should be taken separately from anti-acid medication. 7  | Patient was on medication to decrease his reflux symptoms related to his GERD.  |
| Vitamin B-12 (cyancobalamin)  | Antianemic  | Caution with folate supplement with pernicious anemia. Mild transient diarrhea. Decreased absorption of vitamin B12 with gastrectomy and need diet supplement. 7 | Patient was on medication due to his gastrectomy and therefore decreased absorption of Vitamin B12. Because of his past surgical history it was important to supplement this vitamin in the diet.  |

Current Hospital Medications

|  |  |  |  |
| --- | --- | --- | --- |
| Medication | Function | Effect on Food Intake | Interpretation of Medication  |
| Cholecalciferol (vitamin D3) | Vitamin and calcium regulator | Increases calcium absorption. May experience dry mouth, metallic taste, nausea, vomiting, constipation and diarrhea. 7 | Patient was on medication to prevent osteoporosis in adults. With age as a factor this is recommended in older adults as a preventative medication. |
| Heparin (porcine) | Anticoagulant  | Can result in nausea, vomiting, abdominal pain, gastrointestinal bleeding, constipation, black tarry stool. 7 | Patient was on medication to prevent further clots from forming due to his past medical history or deep vein thrombosis.  |
| Nystatin (mycostatin) | Oral candidiasis treatment | Take supplement as directed and retain oral drug in the mouth as long as possible. May cause gastrointestinal distress, nausea, vomiting, stomach pain, diarrhea. The drug is not absorbed in the gastrointestinal tract. 7 | Patient was on medication to assist with oral thrush related to cancer and radiation. Since the patient is undergoing radiation currently he has a weakened immune system. |
| Vitamin B-12 (cyanocobalamin) | Antianemic | Caution with folate supplement with pernicious anemia. Mild transient diarrhea. Decreased absorption of vitamin B12 with gastrectomy and need diet supplement. 7 | Patient was on medication due to his gastrectomy and therefore decreased absorption of Vitamin B12. Because of his past surgical history it was important to supplement this vitamin in the diet. |

Diet

Patient was seen previously seen in 2015 and states that he does not have a problem eating anything specific and he eats anything and everything. Patient stated that he used to drink one bottle of Ensure and one homemade carnation instant breakfast with everything that his wife makes. Upon admissions to the hospital within the last year, the patient had decreased appetite and was consulted by the registered dietitian to speak with the patient to discuss increasing appetite with smaller frequent meals, and supplementing the diet with Ensure when the patient was not feeling well enough to eat. Diet history reported from the patient was not appropriate for this admission due to the NPO status for ten days and gastric cancer. Patient does not have any food allergies. Patient admitted on 11/1/16 on regular diet at 5:33 PM, that following night at 7:01 regular diet was discontinued and NPO diet was ordered. Patient continues on NPO up to 11/10/16. On 11/16/16 patient diet advanced to clear liquids. The progression of the diet order including the tube feed order is as follows below.

Progression of Diet Order

|  |  |  |  |
| --- | --- | --- | --- |
| Date | Diet | Notes | Rational  |
| 11/1/16 (5:33 PM)- 11/1/16 (7:01 PM) | Regular Diet | No Restrictions  | Was admitted with diet and was D/C |
| 11/1/16- 11/10/16 | NPO  | NPO | Gastric outlet obstruction, upper endoscopy test, PEG placement  |
| 11/10/16 | Vivonex at 20 mL/hr  | None  | Per MD, was consulted to nutrition services for TF recommendations |
| 11/10/16  | Vital 1.2 at calculated goal rate of 85 mL/hr | NPO, advanced over three-day period  | Elemental formula, with fish oil to help with healing and inflammation  |
| 11/16/16 | Vital 1.2 at calculated goal rate of 65 mL/hr and clear liquid diet.  | Tube feed on when patient isn’t eating  | Try to slowly advance diet with clears and advance as tolerated per MD  |

Comparative Standards

The total estimated energy needs are 2100 to 2650 calories per day. The method used to determine the needs was calorie per kilogram of body weight. It was appropriate to use 20-22 calories/kg using 104.7 kg of admit weight based on admit weight, obese, oncology, age and need repletion.

Calorie range= 20-22 calories/ kg

Calorie range= 20 calories/ kg x 104.7 kg Calorie range= 20 calories/ kg x 104.7 kg

**Calorie range = 2100 calories Calorie range = 2650 calories**

The protein requirements are 126-157 grams/day. The method used to determine the needs were 1.2-1.5 grams/kg of admit body weight based on stage IV gastric cancer with metastases to liver and need for repletion.

Protein range= 1.2-1.5 gram/kg

PRO = 1.2 grams/kg x 104.7 kg PRO = 1.5 grams/kg x 104.7 kg

**PRO = 126 grams/day PRO = 157 grams/day**

To protocol of the specific hospital the fluid requirements would be as clinically indicated per the medical team. If the fluid requirements were calculated it is 2617-2665 mL/day. The method used to determine the needs were based on the disease state of stage IV gastric cancer with metastases.

Fluid range= 25-35 mL/kg

Fluid = 25 mL/day x 104.7kg Fluid = 35 mL/day x 104.7 kg

**Fluid = 2617 mL/day Fluid = 3665 mL/day**

**Diagnosis**

Inadequate oral intake (NI-2.1) related to altered GI function as evidence by NPO since 11/1 due to gastric outlet obstruction, pending TF via J-tube. 8

Malnutrition acute/severe (NI-5.3) related to protein/energy intake as evidence by weight loss of >7.5% x3 months, and energy = <50% energy intake. 8

**Intervention**

Food and/or Nutrient Delivery

Upon the first visit (11/4/16) the patient was NPO for 4 days since admission on 11/1/16, and had not eaten three days before being previously admitted. It was recommended to start parenteral nutrition. The recommendations are as follows:

Day 1: 865 mL 15% amino acids, 215 mL 70% dextrose, 165 mL 20% lipids

Day 2: 865 mL 15% amino acids, 325 mL 70% dextrose, 330 mL 20% lipids

Day 3: 865 mL 15% amino acids, 430 mL 70% dextrose, 330 mL 20% lipids

This provides 2200 calories, 130 grams protein, 1625 mL total volume (additional fluids per MD discretion). Monitor for refeeding syndrome and replace potassium, phosphorus and magnesium as needed prior to advancing to goal rate. Check triglycerides for baseline and monitor weekly. Patient education is not appropriate at this time due to NPO status. Referred patient to MD to consider TPN recommendations. A malnutrition diagnosis was complete by the dietitian and signed by the MD in agreeance. The team did not feel TPN was appropriate at this time. Based on physicians note the patient stated his desire to avoid palliation with a drainage PEG tube.

 The patient had an additional follow up (11/7/16), patient was still NPO and the medical team had decided not to start TPN.

Upon the follow up with the patient (11/10/16), a G-J tube was inserted at bedside and a consult was placed for the tube feed order. The MD originally prescribed Vivonex at 20 mL/hr but a nutrition consult for the tube feed was put in. The new recommendations were Vital 1.2 at goal rate of 85 mL/hr. This would provide 2448 calories, 153 grams protein, 1652 mL of free water. Since the patient is at risk of refeeding syndrome it is prefer to initiate enteral nutrition over three days. The recommendations are as follows:

Day 1: Vital 1.2 at 20 mL/hr x 24 hour

Day 2: Advance Vital 1.2 to 40 mL/hr x 24 hour

Day 3: Advance Vital 1.2 to 65 mL/hr then continue advancing per protocol to 85 mL/hr goal

The diet was changed in Epic to reflect the recommendations from the dietitian. When the dietitian visited the patient was sleeping with the door closed and the curtain shut. The dietitian did not wake him but the PA-C was paged to inform him of the change in the diet order. Education for the patient was not appropriate at this time due to resting comfortable and did not awaken.

Upon the next visit the patients diet was upgraded to include the tube feed at goal rate of Vital 1.2 at 85 mL/hr and a clear liquid diet. The patient was seen on 11/17/16. Patient was eating soup upon visit with dietitian. The patient was unable to state how he was tolerating the clear liquids since this was the first thing he tried to eat. The discussion with the patient was brief as the patient not very willing to talk with the dietitian. In the follow up assessment there were recommendations for when patient is approaching discharge for standard formula which was Jevity 1.2 at goal rate of 85 mL/hr with Beneprotein three times daily providing 2448 calories, 131 grams protein, 1653 mL of free water.

Nutrition Education/ Counseling

Nutrition education for the patient was not appropriate at this time because the patient was nothing by mouth and only on tube feeding, therefore none was completed. After the patient’s diet was advanced to clears nutrition education on emesis could have potentially been completed once the patient is advanced. It would be encouraged that the patient is avoiding their favorite food and consuming energy dense foods for protein/ calorie optimization and hydration maintenance. There was no specific approach used as it was not applicable to the patient’s care up until this point.

Coordination of Care

The dietitians who followed the patient communicated with the team when the TPN recommendations were suggested along with tube feed recommendations. Also communicated with the nursing staff about the patient’s nausea and vomiting where the nurse provided anti-emetics to control the signs and symptoms.

**Monitor/ Evaluation**

###### *Food/Nutrition-Related History*

###### Monitor that patient consumes 100% of Vital 1.2 on enteral nutrition once advanced to goal rate. Monitor the patient’s intake would be from the nursing records in the Epic database. Once the patient has reached the goal rate and has tolerated the formula, the tube feed formula will be changed so the patient is sent home on a regular formula and not an elemental formula such as Jevity 1.2. Also the patient’s calorie needs would need to be adjusted to ensure he is meeting his needs. Again once the formula is changed, it would be important to check for tolerance and ensure the patient is having regular bowel movements, unless a bowel regimen should be suggested.

*Anthropometric Data*

Monitor for patient weight gain since patient lost 9 pounds since admission. The patient was NPO for ten days during admission and stated he had poor appetite and had not eaten very much 4 days prior to coming into the hospital. Monitor weight daily to ensure proper weight gain as patient is consuming estimated nutrition needs.

*Biochemical Data*

Monitor potassium, phosphorus and magnesium for tolerance of tube feed weekly. Monitoring labs is important for tube feed tolerance.

*Nutrition Focused Physical Findings*

Monitor the patient’s gastrointestinal tract to ensure it is not hypoactive or the patient is experiencing dumping syndrome or vomiting. As the patient is progressing to the goal rate of the tube feed, ensure the patient is having regular bowel movements every one to three days.

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