Health Variations 1 Nursing

[Name of the Writer]

[Name of the Institution]

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**Question Number 1**

**Functional Alterations**

Eleanor Brown is a patient of ulcerative colitis. The structural and functional changes in the process of disease occurrence led to weight loss in the patient. She was 31 years old when the disease occurred to her, and now she is about 48 years old. The functional alterations are examined through her disease intervention, i.e., there were minor episodes of ulcerative colitis, but gradually they started to increase. She also had fourteen diarrheic episodes, along with regularity of pus and blood. This caused severe pain and bloating in the lower abdomen. Due to this reason she could eat and drink which led to the weight loss of about nine kilograms in two weeks, and this made her feeling fatigued and lethargic.

**Structural Alterations**

The structural changes in the body of Eleanor can be determined through declining health. On orders from her gastroenterologist, an MRI scan was done, and it showed that pancolitis has developed and ileostomy (Rotter et al., 2017). As she was examined, doctors inferred that her abdomen is swollen and it causes pain to the patient. The skin of her abdomen is pale and dry and so cold to touch with a lower turgor. The urinary output is very low due to a slow refill of capillaries and flat neck veins.

**Admissions observations**

On administering in the hospital certain tests and measurements were carried out for Eleanor, and they revealed a deteriorating state of body fluids and chemicals. For instance, her Blood pressure was 90/50 mm/Hg, pulse rate was high, i.e., 120 beats /min. Pathology results showed the count of hemoglobin and white blood cells that were lower than the usual rate. Protein count was low, i.e., albumen was 22.8 g/L.

The observations and results of the patient proposed the functional and structural reasons for the weight loss of Eleanor. The ulcerative colitis disease is the ultimate cause for the poor appetite, food aversions, malabsorption of food by intestines and intestinal bleeding due to diarrhea causes loss of nutrients. The basic reason for weight loss is malnutrition; therefore it is a typical symptom to lose weight in ulcerative colitis. Many people lose their appetite due to this disease, which ultimately causes weight loss (Yangyang, & Rodriguez, 2017). The pain is also the reason behind the loss of appetite, as patients with ulcerative colitis experience severe pain in the abdomen and rectum. Hence, Eleanor lost weight due to the severity of this disease as she was going through ulcerative colitis for sixteen years.

**Question Number 2**

The basic mechanism of pain occurs through three steps in the presence of stimuli; transduction, transmission, and modulation (Wiech, 2016). The first step in the pain pathway is transduction of pain, which occurs via the trail of nociceptive receptors. The following steps are involved in transduction:

1. Events occurred in the presence of stimuli are turned into events of chemical tissues.
2. Events of the synaptic cleft or chemical tissue are then converted into electrical events.
3. These electrical events are then transduced at synapses into the events of chemical impulses.

Transmission occurs after these afore-mentioned steps of transduction. In this step, electric impulses are all along sent to the neural pathways, whereas the neurotransmitter which is present in the synaptic cleft send the information to the pre-synaptic terminal from the post-synaptic terminal. Subsequently, the process of modulation takes place in all through the nociceptive pathways by the help of a basic afferent neuron, higher brain center, and DH by succeeding regulations.

The morphine acts by altering the conscious pain perception by decreasing the magnitude, fraction and response of neural durations. Further, morphine decreases the ability of cortex and thalamus within both neural pathways which are essential for discriminating the noxious stimuli from innocuous stimuli. Therefore, it suppresses the information flow of pain-evoking alterations from medial pathways towards the lateral one, such as from cortex to thalamus (Buchs et al., 2017).

**Question Number 3**

**Symptoms and Signs**

Ulcerative colitis is also classified as inflammatory bowel disease (IBD). Basically, this disease affects the digestive tract, but it may impact other parts of the body as well (Yangyang, & Rodriguez, 2017). The symptoms of this disease vary from person to person. The symptoms are as follows:

* Severe abdominal pain
* Blood in the stool
* Severe diarrhea
* The urgency of bowel movement
* Losing appetite
* Fever
* Stool accompanying mucus

Ulcerative colitis is a progressive disease, and it starts from the part of large intestines known as sigmoid colon and spreads up from there to the whole colon (Shah et al., 2016). The type of ulcerative colitis varies according to the intensity of this inflammation caused in the large intestine.

**Causes of Occurrence**

There is a various factor associated with the occurrence of ulcerative colitis, for instance, genetic, environmental, and physiological factors are affecting the large intestines which then causes the disease (Cleynen et al., 2016). This disease can be inherited as well as affected by environmental change, i.e., diet, smoking, pollution, and deteriorated hygiene. The major cause of this disease is an autoimmune condition; this condition occurs where the immune system is fighting a non-existent infection. Therefore it causes inflammation. Age-factor is also involved in determining the occurrence and intensity of this disease, i.e., its possible occurrence is 15-30.

**Question Number 4**

First of all, morphine is indicated in the list of fluids ordered by a medical officer, and then comes other intravenous fluids, i.e., metoclopramide, Hartmann’s solution and methylprednisolone (Costello et al., 2017). The morphine is used for pain suppression, and it is necessary for the patients of ulcerative colitis-like Eleanor, because of the severity of abdominal pain and cramps. So it is injected in Eleanor with the concentration of about 15 mg to numb the severe pain she is feeling due to inflammation and bleeding.

The other fluid which is used is metoclopramide, and it is a medication used for eliminating nausea and headaches. As Eleanor is going through the loss of appetite, it is due to the pain and nausea; therefore, this medicine is used for the suppression of the vomiting-like feeling in the patients of ulcerative colitis. Along with these medications, Hartmann's solution is also used; it is a mixture of sodium lactate, sodium chloride, calcium chloride and potassium chloride in water. Given every sixth-hour, it will balance the electrolytes and fluids in the body of Eleanor, as she has low blood pressure and blood fluids. Methylprednisolone is steroid which is also used for Eleanor as it will reduce the inflammation in the body of the patient.

**References**

Rotter, J. I., Taylor, K. D., Targan, S. R., Haritunians, T., McGovern, D. P., Guo, X., & Fleshner, P. (2017). U.S. Patent Application No. 15/338,782.

Cleynen, I., Boucher, G., Jostins, L., Schumm, L. P., Zeissig, S., Ahmad, T., ... & Brant, S. R. (2016). Inherited determinants of Crohn's disease and ulcerative colitis phenotypes: a genetic association study. *The Lancet*, *387*(10014), 156-167.

Shah, S. C., Colombel, J. F., Sands, B. E., & Narula, N. (2016). Mucosal healing is associated with improved long-term outcomes of patients with ulcerative colitis: a systematic review and meta-analysis. *Clinical Gastroenterology and Hepatology*, *14*(9), 1245-1255.

Wiech, K. (2016). Deconstructing the sensation of pain: the influence of cognitive processes on pain perception. *Science*, *354*(6312), 584-587.

Buchs, N. C., Bloemendaal, A. L. A., Wood, C. P. J., Travis, S., Mortensen, N. J., Guy, R. J., & George, B. D. (2017). Subtotal colectomy for ulcerative colitis: lessons learned from a tertiary center. *Colorectal Disease*, *19*(5), O153-O161.

Costello, S. P., Soo, W., Bryant, R. V., Jairath, V., Hart, A. L., & Andrews, J. M. (2017). Systematic review with meta‐analysis: fecal microbiota transplantation for the induction of remission for active ulcerative colitis. *Alimentary pharmacology & therapeutics*, *46*(3), 213-224.

Yangyang, R. Y., & Rodriguez, J. R. (2017, December). Clinical presentation of Crohn’s, ulcerative colitis, and indeterminate colitis: Symptoms, extraintestinal manifestations, and disease phenotypes. In *Seminars in pediatric surgery* (Vol. 26, No. 6, pp. 349-355). WB Saunders.