The possible complications and side effects of chemotherapy

Introduction.

“ Chemotherapy is a common type of cancer treatment that uses drugs or medications to treat many types of cancer. It works by targeting and eliminating rapidly dividing cancer cells in the body”. (Fayed 2009). Anti-neoplastic drugs are given for two main reasons. The first type is called palliative chemotherapy where the treatment may control or even eliminate tumors so that to relieve the symptoms brought on such as pain. Another reason why chemotherapy is given is to prevent recurrence after surgery or radiation therapies that are made to control the tumor. This type of chemotherapy is called adjuvant or neo-adjuvant chemotherapy. Cancer cells grow very fast and sometimes can detach from the original site of the tumor and go to other places in the body chemotherapy is also given to slow down the growth of caner cells and to prevent it form spreading to other places around the body. Walters (1990)

Chemotherapy can be given by intravenously in a vein, as an injection in a muscle or other part of the body, as a pill or liquid that cab swallowed by the patient or as a cream that can be applied on the skin. National cancer institute (2008) There are a number of anti-neoplastic drugs, with each anti-neoplactic being effective against one type of caner. The treatment plan is made up by the oncologist with the frequency and duration of chemotherapy varying depending on a lot of factors including: the type of caner, the stage to which the caner has arrived, other treatment that the patient is taking and other health factors. Walters (1990)

Chemotherapy Side Effects:

Like other treatment and medication chemotherapy has its side effects. The side effects affect you depending on a number of factors such as what type of chemotherapy drug is being taken, how strong the treatment is and the overall general health of the patient. Treatment can be given to resist these side effects. Another effective way of combating these side effects is by keeping " a pain or symptom journal" (Fayed 2009). With the help of this journal the doctor can have a better idea of how the person is tolerating the treatment given. This journal can also help the patient to remember important details about his condition and treatment given. The patient must be well informed on the side effects and the treatment he/she is receiving as " the more you know about these highly toxic agents, the more you can do to minimize their side effects." Walters (1990). The patients themselves say that they want to learn more on their condition and the therapy they are receiving as seen in the article by the National cancer institute (2008) where the patient is quoted as saying

" As soon as I got past the shock of being told I had cancer, I wanted to learn more. I had so many questions about the kind of cancer I have and how it's treated. Now I've finished my first cycle of chemo, and I feel very hopeful."

Hair loss:

The chemotherapy drugs work by eliminating rapidly multiplying cells. Hair follicle cells multiply as fast as cancer cells and unfortunately the chemotherapy is not able to distinguish between the two, thus it attacks also the healthy cells. Some of these cells that grow fast are those of the hair and so chemotherapy can lead to a loss of hair thought the body. (National

cancer institute 2008) Hair loss of the head is one of the worst side effects of chemotherapy, lowering the patient's self esteem and serves as a constant reminder of the cancer to the patient. Some research is being done and Walters (1990) suggest that wearing an ice cap on the head prevents some chemotherapy from reaching the hair follicles. Also the patients should be reassured that hair usually grows from 4-6 weeks after the chemotherapy is stopped, although there may be a change in color or texture.

Taste and appetite changes:

Taste changes happen in about 50% of the people having chemotherapy. " It's described variably as " metal mouth," a bitter taste, loss of taste, or decreased ability to taste sweet foods". Fayed (2008) This affects the person's ability to enjoy food and can also interfere with getting the nutrition needed during the cancer treatment. This taste changes happens because the cells in the mouth are rapid changing cells and thus are also targeted from the chemotherapy as the chemotherapy does not distinguish between good cells and cancer cells. Nausea and vomiting may also lead to the change in taste. These taste changes start about a week after chemotherapy is started and last for about 3-4 weeks. Mouth sore can also develop and good oral hygiene is highly recommended by fayed (2008). Ideally there should be mouth washing after each meal. Also the National cancer institute (2008), suggest that a person should try to eat five small meals rather than 2 or 3 big ones.

Constipation:

Another drawback of chemotherapy is constipation. Fayed (2008) defines constipations " as having hard or infrequent stools or difficulty in having a

bowel movement.” Chronic severe constipation can lead to “ fecal implication” which is defined as “ having hard or infrequent stools or difficulty in having a bowel movement”. Fayed (2008). The matter develops in the rectum as it cannot be passed and is then removed manually by the doctor. Fayed (2008). The National cancer institute (2008) suggests eating food that ahs a lot of fiber, drinking and doing excersie.

Diarrhea:

The opposite of constipation that is diarrhea can also be another side-effect of chemotherapy. This happens because the chemotherapy drugs affect the lining of the intestine. Apart from this other factors leading to diarrhea during chemotherapy are: anxiety, stress, malnutrition, or surgery to the bowel or colon. (National cancer institute 2008), Some of the tips given by Fayed (2009) to try and avoid or manage diarrhea are: drink about 8-10 glasses of clear liquid, avoid food that causes gas, avoid diary products and eat foods low in fiber.

Bone Marrow suppression:

Blood cells are produced in the bone marrow special fats dividing cells and like all other fast dividing cells, these cells are also affected by the chemotherapy. This suppression usually leads to a decrease in white blood cells, platelets and to lesser degree red blood cells. Before and after each chemo session a CBC is taken to check the levels of white blood cells, platelets and red blood cells. The white blood cell count usually returns to normal between treatments. Patients with low white blood cell count should be careful to avoid infections. When there are sign of infection the person should seek medical attention to be treated. Usually antibiotics IV are given.

When the platelets levels falls below normal the person is thrombocytopenic. Platelets are important as the lack of them can cause hemorrhage. Some signs of Chemo-Induced Thrombocytopenia are: fatigue and weakness, bruises that develop easily, headaches, bleeding gums, bloody stools or urine, petechiae and ecchymoses It is important that the patient tells everything that he/she is feeling to the doctor or nurse so that the necessary treatment is given before things worsen. (Johnson n. d)

Chemotherapy-Induced Cognitive Impairment:

Chemotherapy-induced cognitive impairment is described as " dysfunction, weakening, or impairment of memory in patients who have been treated with chemotherapy for cancer." (Evens and Eschiti 2009). Cognitive impairment can be distressful for both the patient and his family especially if they were not informed about this type of side effect from chemotherapy. Cognitive impairment can affect negatively the short term memory and also cause problems with judgment and reasoning. (Evens and Eschiti 2009).

Weight Gain and Weight Loss:

Chemotherapy may directly or indirectly cause weight loss or weight gain. Slight fluctuations up or down are not dangerous, however excessive weight loss may affect the patient's health or ability to tolerate the treatment. Sometimes sleep problems exist because of other medications prescribed to combat side effects of the chemotherapy. For example, steroids, like dexamethasone, may be prescribed to control nausea and vomiting from chemotherapy and can also make you feel full of energy (and thus cause difficulty in sleeping). Therefore, it is helpful to avoid taking steroids after five or six o'clock in the evening. Stress and tension of the cancer and

the treatment can also cause sleep problems. The continuous thinking of what will happen from me will keep the patient awake. (Side effects-Symptoms and solutions: Weight changes n. d)

Sleeping Problems:

Insomminia can happen because chemotherapy drugs make the patients feel tired and sleepy throughout the day. Thus, patients on chemotherapy can end up napping or sleeping during the day and then have a difficulty to sleep during the night. (Evens and Eschiti 2009).

Effects on reproduction:

One of the least things people think that chemotherapy will affect is sex and reproduction; however it does affect these two. For men they can become impotence, not able to have orgasm and even too stressed or tired to have sex. It is also important that if sexual activity continues some form of birth control is used as the sperm is defected by chemotherapy and thus the children could be born with a disability. (National cancer institute n. d). On the other hand women can experience; hot flushes, dryness or an itchy feeling in the vagina, infections of the vagina and bladder. Stress fatigue and decreased interest in sex and irregular or no periods. (National cancer institute n. d). Walters (1990) also suggests that women that not look for pregnancy for five years after the treatment.

Nausea and vomiting:

According to Woodruff (1997), nausea is " the unpleasant, subjective feeling of the need to vomit. Whereas, vomiting is the forceful release of stomach

contents through the mouth caused by strong contractions of the stomach muscles.”

Nausea and vomiting are one of the most common side effects of chemotherapy and can be so distressing that the person may even refuse to continue the treatment. To find the right antiemetic usually proves to be a matter of trail and error. It is important to address the problem as nausea and vomiting will lead to loss of appetite and dehydration. (National cancer institute 2008).

Chemotherapy-induced nausea and vomiting (CINV) can be seen as acute CINV, delayed CINV or anticipatory CINV. CINV that occurs 24 hours after chemotherapy infusion is called acute CINV. Delayed CINV is initiated 24 hours or more after the infusion of chemotherapy. It can last to several days after chemotherapy infusion is completed. Anticipatory CINV can occur in up to 25% of patients and is a result of classic operant conditioning from stimuli associated with chemotherapy; usually occurring within 12 hours prior to treatment administration (Camp-Sorrell, 2005).

The feeling of nausea and vomiting come from the fact that the chemotherapy agents stimulate the brain’s vomiting center (located in the medulla) and chemoreceptor zone. Chemotherapy and other medications can also irritate the stomach lining. Apart from this there is also anticipatory nausea. This is when the person has already passed from chemotherapy and the brain recalls how the person felt at that time. It is also important to remember that emotions can contribute to nausea and vomiting. Thus by exploring the patient’s feelings, before the treatment starts the problem

could be very well elevated. Also the patients are advised to sleep when the nausea is at its worst. (National cancer institute 2008)

Treating nausea and Vomiting:

Treating of nausea and vomiting is important to the psychological well being of the patient as no one like feeling nauseated. Apart from the psychological aspect curing of nausea is also important physically. Persistent nausea and vomiting can lead to dehydration, lack of nutrients and also tears in the esophagus . For people that had surgery vomiting can be even more painful and can lead to the incisions being pulled apart. (Camp-Sorrell, 2005).

A number of options to treat nausea induced by chemotherapy exist. Many medications are most effective before nausea commences, so many people are treated preventatively with anti-nausea medications, before they show any signs and symptoms. Some of the drugs can be given on a regular basis, while others are given on as-needed basis. Faye (2008). Medications may be given orally, intravenously, rectally, or sublingually. To be effective more than one medication is usually given. This is because many of the anti-nausea drugs work by attacking different mechanisms. Some of the medications used are:

Aprepitant (Emend)

Dexamethasone (Decadron).

Dolasetron (Anzemet).

Granisteron (Kytril)

Haloperidol (Droperidol)

Lorazepam (Ativan)

Metoclopramide (Reglan)

Ondansetron (Zofran)

Palonosetron (Aloxi)

Proclorperazine (Compazine)

Promethazine (Phenergan)

Before giving the drugs the health care provider must do an assessment to see which drug/drugs suites the patient best and which will have the least side-effects on the patient.

Faye(2008) suggest that the doctor should be called if the medications are not controlling the nausea, there is persisting vomiting, abdominal pain is experienced, if the nausea is interfering with the ability to eat or drink and if the person experiences any experiences which he/she thinks could be related to anti-nausea medication.

Levitt (1980) suggests that treatment should be scheduled before bedtime if possible. He also suggests that antiemetic drugs should be given half an hour before or just before or just after the chemotherapy.

Alternative/Complementary Treatments:

There are some alternative therapies that can help in controlling nausea during chemotherapy. Acupuncture is effective for chemotherapy-induced nausea, and may decrease the need for medications. Also acupressure wristbands may be helpful. Some even suggest the use of cannabinoids (marijuana) for nausea during chemotherapy. However its use has a lot of controversy and its use varies widely thought the word. (Fayed 2008)Fayed (2008) suggests that to manage nausea and vomiting during chemotherapy:

Small meals should be eaten during the day. It is easier to try and eat small amounts of food rather than large amounts when you feel really hungry. It is better to let the nausea pass before eating large amounts of food.

Fatty or greasy foods should be avoided especially before the treatment. This is because greasy foods take long to be digested let along if the person is nauseated.

The person should rest after eating, but do not lie completely flat. Lying up in an upright position will help digestion.

Drink fluids at room temperature. This is because nausea in already sensitive stomachs may increase with cold or hot beverages.

Stop the smoking habit. Smoking can easily upset the stomach, thus worsening the nausea. Smoking should be stopped most preferably before the treatment starts. Apart from smoking even caffeine should be stopped.

Avoid eating food that the person likes, when he/ she is feeling nauseated. This is because the body may associate these foods with nausea and vomiting, a condition known as

Avoid strong scents or odors. This may mean that no cooking for the rest of the family takes place while the person undergoing chemotherapy is in the house.

Conclusion:

All side effects cause a distress on the patient. It is important that health care providers familiarize themselves with clinical practical guidelines, as well as current evidenced-based information to provide the best care towards the patient, with the least possible side effects and be up-to-date in effective ways of successfully reducing or eliminating these dreadful side effects. (Camp-Sorrell, 2005).