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Instructions: 1. Discuss characteristic findings for a cellular complexity.

2. Discuss characteristic findings for an immunological complexity.

3. Explain how the nursing process is utilized to provide safe and effective care for patients across the

life span.

Genetic and Immune

Determinants of immune

Activation in HIV-Exposed

Seronegative Individuals and

Their Role in Protection Against

Cellular and Immunological Complexities: Care of Cancer

Student's Name

Institution of Affiliation

Cellular and Immunological Complexities: Care of Cancer

According to the World Health Organization (WHO), cancer is the second most cause of high mortality rates globally. Individuals and different persons have cancer all through written history. The WHO data in 2018 estimated that approximately 9.8 million people die across the globe and that one-six of the deaths are due to cancer (WHO, 2018). Notably, about 70 percent of the world's cancer deaths happen in low-income and middle-income countries, mainly due to a lack of proper nursing interventions and medical technologies that would aid in cancer management. In most cases, once one has been diagnosed with cancer, the standard treatment is the preferable treatment option currently accessible depending on the stage of cancer. However, standard treatment cannot cure cancer. However, it is important to understand the disease and make the right diagnosis to enable healthcare professionals to administer the best treatment option.

“Describe the diagnosis and staging of Cancer”

According to the National Health Institute (2020), there are various guidelines for diagnosing and screening cancer using a series of procedures. The diagnosis and staging of cancer depict where the cancer is located, where it has spread to, and whether it influences other body parts or organs. For the staging, specialists often use tests to decide the cancer stage (Gershenwald et al., 2017). The staging of cancer may not be completed until most of the tests are done.

Diagnosis

The cancer diagnosis starts with assessing a patient's history of cancer and the awareness concerning the management and treatment process. When diagnosing cancer, oncologists and pathologists evaluate a patient's condition and classify the type of cancer and the location of infection. However, during the diagnosis phase, the classification of the types

of cancer like lymphatic cancer can prove problematic, thereby requiring the most complex diagnostic approach. The most important diagnostic techniques include lab tests, imaging tests, and biopsy. When conducting a lab test, the oncologist determines the levels of specific substances in the body that may suggest the presence or development of cancer. Typically, lab tests entail the screening of blood to determine if tumors exist in the patient's blood. In this case, the best diagnostic approach used for this process is tumor markers procedure. During the blood test, the biochemical indicators that may suggest cancer include low levels or high levels of antigens, enzymes, hormones, and cytoplasmic proteins.

Moreover, the oncologist can also use imaging to detect the presence of cancer in the body. Imaging includes CT scans and MRI scans which allow the oncologist to identify internal body organs affected by cancer. Other scanning techniques incorporate X-ray, Positron Emission Tomography (PET), and Ultrasound. For the biopsy test, the physician takes a sample tissue from the patient's body and proceeds with lab tests. The biopsy procedure entails analyzing tissue cells under a microscope.

Staging

Staging refers to the process of determining how much cancer is in an individual's body and the site of infection. In simple terms, it is how the physician determines the stage of an individual's cancer (Gershenwald et al., 2017). Clinical staging of cancer is important because it determines the extent of cancer based on the outcomes of physical exams, imaging tests, endoscopy examinations, and any other biopsies done before treatment. Knowing the cancer disease stage allows oncologists to determine and develop the treatment plan and appropriately estimate the prognosis of cancer. Currently, the best modality used for staging cancer is the "tumor (T), nodes (N), and metastases (M) (TNM). Cancer is staged depending

on various factors, including determining the primary tumor with respect to the size and site of the tumor (Gershenwald et al., 2017).

Additionally, it is important to determine whether the tumor has spread to other nearby body organs or not. The next stage is evaluating if the tumor has spread to lymph nodes or other body parts. The last stage or stage 4 cancer is metastasis and accounts for higher fatalities from cancer tumors. The four stages are as follows:

Stage 0: The cancers at this stage are still situated in the sites where they began and have not yet spread to close-by tissues. If cancer is identified at this stage, it is highly curable, typically by removing the whole tumor with surgery (Dienstmann et al., 2017).

Stage I: It is typically small cancer or tumor that has not developed deeply into the close-by tissues and has not binged to either lymph hubs or other body organs. Stage 1 is often known as early-stage cancer (Dienstmann et al., 2017).

Stage II and III: Stages II cancer show larger cancers or tumors than in stage I that have overgrown more deeply into close-by tissues. Stage III signifies even much larger or more prominent tumors than stage II (Dienstmann et al., 2017).

Stage IV: This phase suggests that cancer has spread to different body organs or parts of the body. Cancer at this stage is considered advanced and metastatic cancer (Dienstmann et al., 2017).

“Describe at least three complications of cancer, the side effects of treatment, and methods to lessen physical and psychological effects.”

In many patients, cancer treatments often possess many side effects that occur when the treatment plans lead to damage of nearby healthy tissues and cells (National Cancer Institute, 2020). However, evidence suggests that the side effects and complications of cancer

are unique for each patient, especially depending on the model or type of cancer treatment. For instance, neutropenia is one of the complications that result from medical treatment. Neutropenia is often a complication that is caused by chemotherapy. Chemotherapy is a medical treatment modality is used to kill fast-growing cancer cells. Neutropenia complication is often evidenced by a decline in white blood counts, which are responsible for the body's defense against pathogens. Consequently, neutropenia complication lowers the ability of the immune system to protect the body from foreign invasion.

The second complication of cancer is hair loss, which is common in many cancer patients undergoing chemotherapy. Hair loss results from a condition known as alopecia areata, an autoimmune disease that causes hair loss. However, the amount of hair loss is different in each cancer patient. For some people, hair loss occurs only in a few spots while they lose most of their hair (National Cancer Institute, 2020). The third complication is Lymphedema, which causes the build-up of body fluids on the skin, causing swelling in different parts of the patient's body. Lymphedema is a complication that results from radiotherapies and surgical processes when getting rid of the affected lymph nodes.

Moreover, the diagnosis and treatment of cancer can have both physical and emotional effects on the patient, family members, and caregivers. The common emotional effects include anxiety, distress, and depression. Further, the roles at home, work, or school can be adversely affected. The physical effects of cancer treatment include sexual health complications, concentration difficulties, organ-related inflammations, and fertility problems (National Cancer Institute, 2020).

Methods to Lessen Physical and Psychological Effects

As noted above, cancer causes significant side effects that must be addressed to enhance healthcare outcomes. There is the need to offer palliative and supportive care to

people living with cancer. For instance, patients should always consult their primary care physicians concerning specific information concerning the side effects they experience due to their treatment modality. For instance, lymphedema can be managed and relieved using palliative care, where patients are encouraged to exercise to enhance the flow of lymph fluids. Besides, exercise can help patients to strengthen their muscles. Further, nurses can provide home-based health care services to patients from low-income families, thus helping to reduce the financial and emotional burden of hospitalization and commuting to and from the hospital for treatment (National Cancer Institute, 2020). The patients can also be provided with mandatory morphine to assist in the moderation of the treatment plans of care.

“Discuss what factors contribute to the yearly incidence and mortality rates of various cancers in Americans.”

Various factors account for the yearly increase in the incidences of cancer and the rising mortality rates from cancer in the United States. These factors include cigarette smoking or tobacco use, obesity, poor habits of eating, and improper dietary regimens (National Cancer Institute, 2020). The other factor is the increase in the Human Papilloma Virus (HPV) and hepatitis diseases, which contribute to the yearly incidences of cancer cases. HPV and hepatitis are responsible for 25% percent of cancer cases in the United States and across the globe (WHO, 2018). The other factors include economic disparities and social status, making it difficult for patients to seek healthcare intervention for early cancer screening and treatment, thus leading to an increase in the mortality rates from cancer.

“Explain how the American Cancer Society (ACS) might provide education and support. What ACS services would you recommend and why?”

The American Cancer Society (ACS) can assist cancer patients by improving patient education and support by providing patient information emotional support to patients and

their families (Rock et al., 2020). Offering cancer information and emotional support can enhance patient outcomes and reduce the side effects, which are most of the common worries of cancer patients. Moreover, the ACS can accomplish this mission through a 24-hour information provision via phone and live chat by its support team (Rock et al., 2020). When patients are provided with cancer-rich information, patients can make informed decisions concerning their treatment plans and clear the worries they might be having. More important, ACS specialists offer educational information that allows patients to get the answers to their healthcare queries and needs.

“Explain how the nursing process is utilized to provide safe and effective care for cancer patients across the life span. Your explanation should include each of the five phases and demonstrate the delivery of holistic and patient-focused care.”

More often, nurses use five-stage processes to care for cancer patients. The five phases incorporate assessing, diagnosing, planning of care, implementing, and evaluating outcomes. Through the nursing process, nurses often assess patients by evaluating treatment history and patient awareness concerning the cancer treatment intervention used (Taylor et al., 20187). The assessment allows physicians to develop a care plan for the patient depending on the type of cancer diagnosed. Afterward, the oncology nurse often reviews the developed treatment plans with the physicians and the complications that may arise from the treatment intervention (McCuistion et al., 2020). Equipped with the patient medical history and related information concerning the patient’s health and laboratory results, the oncology nurse is well-prepared to handle the care need of the cancer patient. In this case, the diagnostic information and patient’s background information assist in alleviating anxiety and the development of plans of care for the patient (McCuistion et al., 2020). Again, it assists in eradicating any potential misunderstandings or confusion in patient’s expectations. Notably, sufficient knowledge enhances the provision of patient-focused beside care.

Moreover, the oncology nurse can further discuss the treatment plan with the oncologists, who often lay the foundation for implementing the nursing intervention (Taylor et al., 20187). Implementing a nursing care plan entails providing patient-centered care where the oncology nurse implements care plans to manage the associated treatment complications (McCuistion et al., 2020). For instance, the contacting therapists can offer emotional and physical support to the cancer patient. The oncology nurses who care for the cancer patients also help enhance patient outcomes by offering them the information given to them by the ACS. During the nursing process, patient education is also crucial to help enhance patient outcomes.

“Discuss how undergraduate education in liberal arts and science studies contributes to the foundation of nursing knowledge and prepares nurses to work with patients utilizing the nursing process. Consider mathematics, social and physical sciences, and science studies as an interdisciplinary research area.”

Without a doubt, undergraduate education in liberal arts and science studies significantly contributes to nursing knowledge. It prepares the nurse to work with patients while using the nursing process because it equips nurses with the appropriate technical skills and knowledge required in the nursing process (Pope, 2016). For instance, evidence suggests that culturally competent nurses are well-rounded, and the understanding of educational disciplines like mathematics, social, physical sciences, and interdisciplinary areas improves nurses' competence. According to Pope (2016), disciplines like mathematics equip nurses with the ability to comprehend quantitative data that is essential to further nursing practices, and disciplines like statistics help nurses to understand more about the spread prevalence and incidences of particular diseases. More important, social and physical sciences mold nursing students to become future nursing leaders.

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