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A CASE REPORT ON STAGE IV HODGKIN'S LYMPHOMA

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ABSTRACT

Hodgkin's lymphoma (HL) is a type of cancer in young adults, characterized by a large inflammatory microenvironment and a low number of malignant cells originating from B lymphocytes. It is a distinct lymphomatous cancer that is histologically defined by Reed-Sternberg cells in the right kind of cell environment. The disease primarily affects young adults, with a peak incidence occurring between the ages of 15 and 35. There are two subtypes: classical Hodgkin lymphoma (CHL) and nodular lymphocyte predominant HL (NLPHL). A 75-year-old patient with Stage IV HL was admitted for chemotherapy cycle IA (75% dose) on 14/06/2023 and was prescribed medications such as Adriamycin, Vinblastine, and Dacarbazine. The patient had systemic hypertension, a cataract, and a hernia. The patient also had a history of loss of appetite, neck swelling, and difficulty in hearing. A biopsy from level III right neck showed Hodgkin's lymphoma (Lymphocyte rich CHL). The next cycle of chemotherapy was scheduled on 28/06/2023. The patient was also admitted for cycle IIA chemotherapy (75% dose) and was prescribed the same medications again. The next cycle was scheduled on 26/07/2023.

INTRODUCTION

An eclectic collection of cancers known as lymphomas are caused primarily by immune cells that live in lymphoid tissues. The two types of lymphomas, Hodgkin's and non-Hodgkin's (HL and NHL, respectively), are distinguished by differences in their histopathologies. HL is a lymphatic system neoplasm that is one of the most common cancers in young adults. It is characterized by a large inflammatory microenvironment and a low number of malignant cells that originate from B lymphocytes. It is a distinct lymphomatous cancer that is histologically defined by Reed-Sternberg cells in the right kind of cell environment. Thomas Hodgkin originally described Hodgkin's disease, now known as HL, in 1832 [1]. The disease primarily affects young adults, with a peak incidence occurring between the ages of 15 and 35. There are two subtypes: Ninety-five percent of cases are classical Hodgkin lymphoma (cHL), which shows nodular sclerosing, mixed cellularity, lymphocyte rich, and lymphocyte depleted. Five percent of cases of Hodgkin lymphoma (NLPHL) are nodular lymphocyte predominant. In 2020, the incidence aNd mortality of HL were 0.98 and 0.26 per 100,000, respectively. Despite being a relatively uncommon cancer, HL is the most common among children aged 15 to 19 years. Advances in antibody therapy have recently led to an improvement in the disease's survival rate. Other promising treatments include checkpoint inhibitors, vaccine therapies, and cytotoxic T lymphocytes [2].

Case Report

A 75 year old patient who is a known case of Stage IV HL came to the hospital with the complaint of right neck lymphadenopathy progression. There was no pallor, icterus, or pedal edema. The patient came for chemotherapy cycle IA (75% dose) on 14/06/2023 and was prescribed medications such as Adriamycin, Vinblastine, and Dacarbazine. In addition to Hodgkin's lymphoma, the patient has a comorbidity of systemic hypertension for 15 years. The patient underwent surgery for hernia and cataract in the year 2001 and 2013. The patient had a history of loss of appetite for one month, neck swelling for one month, and difficulty in hearing for 6 years. Patient was evaluated elsewhere with CECT neck, thorax, abdomen, and pelvis on 25/05/2023 reported as bilateral, cervical, supraclavicular and abdominal lymphadenopathy. The report also revealed bilateral renal cysts and right inguinal hernia. Biopsy from level III right neck shows HL (Lymphocyte rich classical Hodgkin lymphoma). HIC (Hydrophobic interaction chromatography) showed large atypical cells are positive for CD30, CD15, MUMI, PAX5, and Ki67. Epithelial membrane antigen (EMA) shows few positive cells. CD30 and CD3 are negative for the large atypical cells that shows increase T cells compared to B cells in the surrounding non-neoplastic lymphoid cells. He received 6 cycles of chemotherapy with Adriamycin, Vinblastine, and Dacarbazine. He is currently undergoing chemotherapy and has stable condition.

DISCUSSION

The main treatments for HL are either radiotherapy with chemotherapy, either given alone or in combination. On rare occasions, chemotherapy and steroid medication may be given concurrently. Numerous factors influence treatment options, such as the nature of HL, degree (stage) of the HL, whether the illness is big (bulky) or not, if the symptoms (systemic symptoms of fever, night sweats, and weight loss which can be associated with both Hodgkin lymphoma and some non-Hodgkin lymphoma) are being caused by the disease, blood test and other laboratory test results, age of an individual, a person's general state of health and individual preferences. These variables may cause individual treatments to differ slightly from one another [3].

For stages IA and IIA, HL that is exclusively on one side of the diaphragm (above or below) and does not have any unfavorable factors is included in the favorable group. It's not severe; HL is present in less than three different locations of the lymph nodes. It has no resulting symptoms. There is no increase in the erythrocyte sedimentation rate, or ESR.

Chemotherapy (often two to four cycles of the ABVD regimen) and radiation therapy (also known as involved site radiation therapy, or ISRT) are the mainstays of treatment for a large number of patients. In many cases, chemotherapy administered alone (often for three to six rounds) is a further option. Doctors often request a PET/CT scan to assess the course of treatment and determine if further care is needed after a few rounds of chemotherapy. If a patient has other medical issues that prevent them from receiving chemotherapy, they may be able to get radiation therapy alone.

If therapy is unsuccessful, high-dose chemotherapy (with or without radiation) or alternative pharmacological chemotherapy may be suggested, followed by a stem cell transplant. Another alternative would be to have treatment with an immunotherapy medication such pembrolizumab (Keytruda), nivolumab (Opdivo), or brentuximab vedotin (Adcetris). The unfavorable group of stages I and II includes HL that is just on one side of the diaphragm (above or below) but has one or more of the risk factors [4].

Hodgkin's lymphoma patients with supra-diaphragmatic lymphadenopathy who come with systemic B symptoms are typically diagnosed in their 20s and 30s. HL is very treatable even in advanced stages of the disease when combined chemotherapy, radiation therapy, or other mixed modality treatment is used [5].

In general, treatment is more intensive than in cases of favorable disease. Chemotherapy is frequently administered first (either the ABVD regimen for 4–6 cycles or another regimen, like 3 cycles of Stanford V). Several cycles of chemotherapy are followed by PET/CT scans to determine whether and how much more treatment is required. Usually, this is followed by additional, possibly distinct, chemotherapy. Radiation therapy, sometimes referred to as involved field radiation therapy, or IFRT, is usually applied to the tumor areas at this point, especially if the sickness was severe [6].

Stages III and IV involve HL that is both above and below the diaphragm and/or that has widely disseminated through one or more organs outside of the lymphatic system. Doctors usually treat these stages with more intense chemotherapy regimens than they used for prior stages. The majority of physicians use the ABVD regimen (for a minimum of 6 cycles). However, if numerous unfavorable prognostic factors are present, some physicians may opt for more intensive therapy, such as 3 cycles of the Stanford V regimen (bleomycin, doxorubicin, etoposide, mechlorethamine, prednisone, vinblastine and vincristine) [7] or up to 8 cycles of the BEACOPP (Bleomycin, etoposide, doxorubicin, cyclophosphamide, vincristine and procarbazine) regimen. Another option for select patients may be chemotherapy combined with the drug brentuximab vedotin (Adcetris) [8].

PET/CT scans can be used to estimate the amount of extra care you'll need during or following chemotherapy. The outcome of the scans could indicate that more chemotherapy is needed. Chemotherapy may be followed by radiation therapy, particularly if there were any sizable tumor regions [9].

If a patient's HL doesn't improve with treatment, high-dose chemotherapy (with or without radiation) or alternative pharmacological therapy may be suggested, followed by a stem cell transplant. Another approach could be to treat the condition with an immunotherapy medication such pembrolizumab (Keytruda), nivolumab (Opdivo), or brentuximab vedotin (Adcetris).

Accurate diagnosis and meticulous illness staging are essential for the best possible care of individuals with HL [10]. When unfavorable prognostic traits are identified, risk-adapted therapy can be implemented to potentially decrease toxicity and raise the likelihood of cure. Future research aims to further improve the prognosis of HL patients by reducing the number of treatments required to cure them by using novel imaging techniques and peripheral blood molecular assays, as well as by adding new agents to treatment combinations to boost efficacy [11]. According to ACS guidelines, the given therapy was found to be rational. The patient was treated well in the tertiary care hospital.

CONCLUSION

The annual rate of HL incidence has decreased by 1% since the mid-2000s. Survival rates have improved over the past few decades, largely due to breakthroughs in medicine. For all patients with Hodgkin lymphoma, the 5-year relative survival rate is currently about 89%. Two factors that affect these rates are age and the stage (extent) of Hodgkin lymphoma.

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