Analysis of Polychemotherapeutic Treatment with BEACOPP-14, BEACOPP-Baseline and ABVD Programs in Patients with the Advanced Stages of Hodgkin's Lymphoma

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ABSTRACT

Introduction: Hodgkin's lymphoma was first recognized as a malignant disease of the lymphatic system and was mentioned in 1832 in an article by a British physician, Thomas Hodgkin, who at that chronological period isolated the disease into a separate nosological form. For a long time, the disease was fatal, so Armann Trousseau, who described its clinical features, indicated it as a hopeless prognosis. The most acute problem was the treatment of patients with advanced stages, which were considered incurable until the middle of the 20th century. The task of treating patients with Hodgkin’s lymphoma has been solved, chemotherapy-radiotherapy regimens are being improved and are being applied. Today, the priority and highest goal is to search for opportunities to ensure a long and prosperous life of patients. An evaluation was made on the efficacy of polychemotherapeutic protocols in patients with advanced stages of Hodgkin’s lymphoma.

Purpose of the Study: The aim of our research is to conduct polychemotherapy according to the programs of BEACOPP-14, BEACOPP-baseline and ABVD in patients in the advanced stages of Hodgkin’s lymphoma in order to analyze the early efficacy of the use of these schemes.

Materials and Methods: The research was conducted in 51 patients with advanced stages of Hodgkin’s lymphoma. For comparison the following protocols were used: the BEACOPP-14, BEACOPP-base and ABVD.

Results and Conclusion: Evaluation of the early result to therapy was performed by the criteria of complete and partial remission, disease development and death. Advanced stages of Hodgkin's lymphoma, in a comparative analysis, showed a high efficacy of the BEACOPP-14 scheme with a total remission level of 36.8%, mortality for therapy of 5.9%, with no cases of primary resistance in this group. The response rates to therapy using the BEACOPP-base and ABVD schemes were slightly lower, with the development of resistance and further progression of tumor growth in 29.4% and 23.5% of patients, respectively.

KEY WORDS

lymphogranulomatosis, Hodgkin’s lymphoma, polychemotherapy, BEACOPP-14, BEACOPP-baseline, ABVD

INTRODUCTION

Hodgkin's lymphoma was first recognized as a malignant disease of the lymphatic system and was mentioned in 1832 in an article by a British physician, Thomas Hodgkin, who at that chronological period isolated the disease into a separate nosological form. For a long time, the disease was fatal, so Armann Trousseau, who described its clinical features, indicated it as a hopeless prognosis. The most acute problem was the treatment of patients with advanced stages, which were considered incurable until the middle of the 20th century. Success in the history of the treatment of Hodgkin's lymphoma, can be considered in hematological practice by V.T. DeVita and colleagues of chemotherapy drugs such as vincristine, procarbazine, chloromethane, and prednisone (MORR scheme), which led to positive results in approximately 50% of patients with advanced Hodgkin's disease (Aleman B.M. et al., 2003). Due to this, today, lymphogranulomatosis has become one of the few highly liable diseases in the hematological practice. According to the German Hodgkin Study Group, achieving complete remission in patients with advanced stages is possible in 70-90% of cases, using effective polychemotherapy regimens in combination with or without radiation therapy.

The task of treating patients with Hodgkin's lymphoma has been solved, chemotherapy-radiotherapy regimens are being improved and are being applied. Today, the priority and highest goal is to search for opportunities to ensure a long and prosperous life of patients.

PURPOSE OF STUDY

The aim of our research is to conduct polychemotherapy according to the programs of BEACOPP-14, BEACOPP-baseline and ABVD in patients in the advanced stages of Hodgkin's lymphoma in order to analyze the early efficacy of the use of these schemes.

MATERIALS AND METHODS

The study was conducted according to the results of treatment of 51 patients with common stages of Hodgkin's lymphoma who received therapy in the conditions of the Department of Hematology and Chemotherapy of the Crimean Republican Oncological Clinical Clinic named after V. M. Efetov, Simferopol, from April 2008 to March 2016. The median age of the patients were 38.4 (from 19 to 69 years old). The sex ratio is 1:1.4 (men:women). The diagnosis was made according to the results of histological examination of biopsy material from the affected lymph node, including laboratory methods (general and biochemical blood analysis) instrumental methods of visualization (computed tomography of the abdominal organs and chest, ultrasound of the peripheral lymph nodes). For the research 3 groups of patients were
selected who were scheduled for 6-8 courses of chemotherapy, followed by radiation therapy in the affected area:

I - 17 people who received ABVD therapy;
II - 17 people, according to the BEACOPP-base program;
III - 17 people, according to the scheme BEACOPP-14.

According to the histological variants of the disease, the patients were distributed as follows: nodular sclerosis - 31.4% (n = 16), mixed-cell variant - 39.2% (n = 20), lymphoid predominance - 25.5% (n = 13), lymphoid depletion - 3.9% (n = 2). After receiving the 4th course of polychemotherapy, positron emission tomography (PET) or computed tomography (CT) was performed to evaluate early efficacy. At the end of the planned course - CT was performed. Statistical processing of the results was carried out using Microsoft Office Excel 2007.

In our study involving all human participants were in accordance with ethical standards of the responsible committee on human experimentation and with the Helsinki Declaration of 1964 and later amendments.

RESEARCH RESULTS

The planned 6-8 courses of chemotherapy were conducted in 47 (92.2%) patients, in 3 (5.9%) patients - 4 courses and in 1 (2.0%) patient - 1 course (Table I). The response to therapy was assessed according to the following criteria: complete remission (CR), partial remission (PR), disease progression (DP) and death (D). At the stage of carrying out polychemotherapy under the ABVD program (group I), we obtained the following results: CR at the end of the course was noted in 4 (23.5%) patients, PR in 8 (41.2%); DP was detected in 4 (23.5%), and the percentage of mortality was 5.9%. It is worth noting that the death of this patient occurred after the 1st course of polychemotherapy, when the disease was detected at the stage of dissemination process (metastasis to the liver and brain), which was confirmed at autopsy. In patients of group II who underwent BEACOPP-baseline treatment, we managed to achieve CR in 3 patients (17.6%), PR in 7 (41.2%), resistance and further progression of tumor growth were detected in 5 (29.4%) patients. Mortality in this group was 11.8%; 1 patient died at the stage of receiving 4 courses of chemotherapy from developing toxic hepatitis and acute liver failure, and 1 patient - against the background of pneumocystic pneumonia and myelotoxic agranulocytosis.

The evaluation of the effectiveness of therapy according to the BEACOPP-14 program in patients of the third group showed this protocol: complete and partial remission - in 7 (41.2%) and 9 (53%) patients, respectively, with a mortality rate of 5.9%. The death of a patient of this group, developed against the background of decompensation of cardiovascular activity, and also according to the results of the autopsy, they had pleural, pericardial effusion and heart valve dysfunction.

DISCUSSION

The problem of choosing the scheme of polychemotherapy in patients with Hodgkin's lymphoma with later stages (stage III IV, as well as stage IIB with a mass lesion of the mediastinum or the presence of an extranodal lesion within stage E) remains topical. As a part of this issue, two areas were being discussed - the ABVD regimen usage in patients with advanced Hodgkin's lymphoma continues today. Speaking about the effectiveness of a program of polychemotherapy, it is crucial to take into account the overall survival rates, the frequency of relapses (early and late), the level of toxicity of treatment regimens and secondary complications.

The advanced Hodgkin's lymphoma treatment has been under major changes in the last 30 years. Before, from the huge studies indicated that ABVD alone and with the mixed hybrid regimens were equally effective, which gives around 65 to 75% with failure free survival for long period and with 80 to 85% of overall survival rate9). Other research groups also considered ABVD for chemosensitive neoplasia as suboptimal therapy and introduced and developed newer drug combination which were dose-dense and time-intensified, such as BEACOPP, BEACOPP-14, Stanford V, VAPEC-B). On comparing all of these regimens in our research, the patients who were undergoing BEACOPP-14 showed best results with increased complete remission rate and decreasing in patient's mortality rate.

CONCLUSION

The applied polychemotherapy programs in patients with advanced stages of Hodgkin's lymphoma, in a comparative analysis, showed a high efficacy of the BEACOPP-14 scheme with a total remission level of 36.8%, mortality for therapy of 5.9%, with no cases of primary resistance in this group. The response rates to therapy using the BEACOPP-base and ABVD schemes were slightly lower, with the development of resistance and further progression of tumor growth in 29.4% and 23.5% of patients, respectively.

REFERENCES


Table 1. The effectiveness of the treatment of patients with Hodgkin’s lymphoma.

<table>
<thead>
<tr>
<th>Schemes</th>
<th>Complete remission</th>
<th>Partial remission</th>
<th>Progression of the disease</th>
<th>Death of the patient</th>
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<td>ABVD</td>
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<td>8 (47.1%)</td>
<td>4 (23.5%),1 (5.9%)</td>
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<tr>
<td>BEACOPP-baseline</td>
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<td>7 (41.2%)</td>
<td>5 (29.4%), 2 (11.8%)</td>
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<tr>
<td>BEACOPP-14</td>
<td>7 (41.2%)</td>
<td>9 (53.0%)</td>
<td>-</td>
<td>1 (5.9%)</td>
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