Radiotherapy for Early Stage of Hodgkin's Disease at Kuwait Cancer Control Center, Kuwait

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Key Words

Radiotherapy · Hodgkin's disease, early stage

Abstract

Objective: To evaluate the outcome of using radiotherapy (RT) alone to treat patients with early-stage Hodgkin's disease (HD). **Method:** The records of 28 patients with HD treated with RT alone at Kuwait Cancer Control Center between 1980 and 1998 were reviewed. **Results:** Twenty-three patients had stage I HD and 5 stage II. Two patients had B symptoms, 12 (42.9%) patients lymphocyte-predominant histology, 9 (32.1%) nodular sclerosis and 7 (25%) mixed cellularity. Overall survival and relapse-free survival at 10 years were 100 and 83%, respectively. **Conclusion:** Our data indicate that the use of RT alone for treatment of early stages of HD appears to be effective.

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Introduction

Since the introduction of megavoltage radiation, the prognosis for Hodgkin's disease (HD) has dramatically improved over the past 3 decades [1]. Similarly, the development of very effective chemotherapy combinations has provided another option for the management of HD [2].

Since there are concerns about the acute and late complications of chemotherapy, there is a renewed interest in radiotherapy (RT) alone for treatment of early-stage HD. We have therefore performed a retrospective analysis of patients with early-stage HD treated with RT alone.

Material and Methods

Hospital records of 28 patients with early stages of HD at Kuwait Cancer Control Center from 1980 to 1998 were reviewed. Out of 140 patients with HD, 28 patients were treated with RT alone. The patients' characteristics are shown in table 1. None of these patients had received chemotherapy as part of their initial management. In the study population, there were 19 males and 9 females. Their ages ranged from 15 to 28 (mean 25) years. There were 14 Kuwaitis, 10 Arabs and 8 of other nationalities.

Treatment

All patients received megavoltage irradiation with ⁶⁰Co teletherapy units. The majority of patients received wide-field irradiation, total doses ranging between 3,000 and 4,600 cGy, by opposed fields with conventional daily doses of 180–200 cGy per fraction. Tolerance of normal vital structures was taken into consideration depending on organ volume dependence.

Statistical Analysis

Overall survival and relapse-free survival were calculated from the date a patient was first seen in the outpatient clinic according to the Kaplan and Meier [3] method. The follow-up period ranged from 24 to 181 months with a median time of 63 months.

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Table 1. Patient characteristics

	Patients	
	n	%
Histologic subtype		
Lymphocyte-predominant	12	42.9
Nodular sclerosis	9	32.1
Mixed cellularity	7	25.0
Stage		
I	23	82.0
II	5	18.0
B symptoms	2	8.0
Surgical procedure		
Excisional Bx.	22	
Staging laparotomy	4	
Diagnostic laparotomy	1	
Mediastinoscopy	1	
Technique		
Involved field	4	11.0
Extended regional	5	20.0
Mantle	13	46.0
Inverted Y	6	23.0
Age range 15–55 years, mean age 25 years.		

Results

There were no life-threatening complications associated with this treatment modality. The most frequent long-term complication was slight pulmonary fibrosis noted in all patients who received mantle field irradiation. Hypothyroidism was also a frequent complication (noted in one third) of these patients. A Kaplan-Meier estimate of overall survival at 10 years was 100%. The relapse-free survival for the whole group at 5 years was 100% and at 10 years 83%.

According to the Ann Arbor staging system [4], 23 patients were stage I and 5 patients were stage II. Only 2 patients had B symptoms and 4 underwent staging laparotomy. Three stage II patients relapsed following RT, at times ranging from 105 to 150 months. Of these, 2 had nodular sclerosis and 1 mixed cellularity histology. The site of relapse was outside the radiation field. One patient with infradiaphragmatic disease relapsed. Treatment on relapse consisted of combination chemotherapy [cyclophosphamide-(nitrogen mustard), oncovin, prednisone, procarbazine (C-MOPP) or adriamycin, bleomycin, vinblastine or decarbazine (ABVD)] or hybrid. The most

common histologies were lymphocyte-predominant 12 (42.9%), nodular sclerosis 9 (32.1%) and mixed cellularity 7 (25%).

Discussion

The patients in this study represent a selected group with early-stage (majority stage I), nonbulky disease, most with a favorable histology (majority lymphocyte-predominant). Therefore, the outcome of the treatment was very successful, as expected. These results compare favorably in terms of outcome with those from the Stanford group of pathological stages I and II patients whose overall survival at 14 years was 80% [1]. Two randomized studies compared RT with chemotherapy in the treatment of early-stage HD [5, 6]. There was no difference in the overall survival between the two arms (85% for radiation vs. 90% for MOPP chemotherapy at 7 years) in the National Cancer Institute study [5]. The Italian study at 8 years indicated an overall survival advantage for the RT arm [6]. RT continues to be used in the majority of cases of early-stage HD in view of the concern for the late toxicity with combination chemotherapy. Extended field irradiation remains an option for those with very favorable early disease and there is no evidence of increased response to doses above 3,600 cGy [7, 8]. For those with poor prognostic factors, a combined modality of involved field RT with reduced chemotherapy may be a better option.

There are many variables that are known to be associated with significantly improved overall survival. These include favorable histological subtypes, absence of B symptoms, age, normal erythrocyte sedimentation rate, irradiation fraction size, gender, no more than 3 nodal areas involved, the number of fields treated daily and the overall treatment time in days [9–15].

RT treatment is not without late morbidity mainly in the form of secondary malignancy, cardiac, pulmonary and thyroid toxicity [16–18]. A full assessment of the complications of RT was not possible in our study group because of the poor inpatient record documentation or lack of proper follow-up.

Conclusion

RT is an effective treatment modality for early-stage HD because it has limited toxicity and acceptable outcome.

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