Controversies in the Management of Stage I Seminoma

Current controversies in the treatment of stage I seminoma center on the relative roles of surveillance, adjuvant radiotherapy (RT), and adjuvant single-agent chemotherapy. Surveillance has been studied in over 800 patients.

Drs. Fiveash and Sandler are to be commended for their comprehensive review of the current controversies surrounding the management of stage I seminoma. As they have outlined, disease-free and overall survival rates of these patients are excellent when treated with modern radiotherapeutic techniques. Efficacy of radiation therapy is no longer an issue, and current research focuses on reducing short- and long-term morbidity.

Although recent studies of single-agent chemotherapy are encouraging, radiation has been applied to the management of stage I seminoma since the 1920s. The long-term complications of radiotherapy have been examined in some detail, whereas no such data are available for adjuvant chemotherapy. An ongoing randomized Medical Research Council (MRC) trial is comparing adjuvant radiotherapy to adjuvant carboplatin (Paraplatin) in stage I seminoma, but long-term morbidity data comparable to those found in the radiotherapy literature will not be available for decades.

Appropriate Radiation Treatment Fields

A reduction in the total dose and volume of radiation has the potential to further reduce the already low complication rates. A completed MRC trial that compared para-aortic and ipsilateral pelvic radiotherapy to para-aortic radiotherapy alone, published in abstract form, showed identical actuarial freedom from disease relapse rates. There were, however, no failures in the pelvis among patients who received pelvic radiotherapy, as compared with four pelvic failures in the group given para-aortic radiotherapy alone. Longer follow-up is needed to determine whether these differences become statistically significant and to elucidate factors that predispose to pelvic failure.

At UT M. D. Anderson Cancer Center, our current policy is to select patients for para-aortic treatment alone only if they have not had any of the following: (1) prior pelvic, inguinal, or scrotal surgery; (2) prior orchiopexy; (3) evidence of tunica albuginea penetration; (4) evidence of spermatic cord involvement; or (5) persistently elevated beta-human chorionic gonadotropin levels after orchiectomy. We agree with the authors that field reductions are important in this relatively young patient population with fertility concerns. In our experience, acute toxicity (nausea and vomiting) and the need for antiemetics are decreased considerably when one uses a reduced para-aortic field (T12-L5) without inclusion of the pelvis.

Appropriate Radiation Dose

The other issue that warrants comment is the appropriate dose of radiation. An optimal dose to control microscopic disease has not been universally accepted because of the limitations of retrospective analysis and sparse modern dose-response data. Historical dose data are available, however.

In a review of 249 patients treated at Walter Reed General Hospital in the 1950s, Friedman described an isoeffect curve obtained by analyzing pathologic or clinical response of primary or metastatic tumors irradiated to specific doses. The lethal tumor dose, which equated to a 90% local control rate at 5 years, was “600-1000 r delivered over a period of two weeks.” Friedman proposed that although the necessary dose was quite low, the “wide margin of [normal tissue] tolerance prompts the author to administer 2000 r to the retroperitoneal area.”

Thus, it appears that doses of 30 to 35 Gy, which are still used today for the treatment of microscopic disease, are unnecessary. Subclinical para-aortic disease should be well-controlled with 20 Gy in 10 to 12 fractions.

Summary and Future Directions

As Drs. Fiveash and Sandler point out, the trend in managing patients with stage I seminoma should be toward reduced radiation treatment fields and doses. This approach represents an alternative to surveillance, with its well-defined risk of recurrence, and single agent chemotherapy, with its...
potential, but undefined, long-term risks. Although surveillance represents an attractive alternative to adjuvant therapy, patient selection is complicated by a lack of reliable prognostic factors for relapse. Future efforts should be directed toward defining biomarkers that predict for occult stage II disease. Preliminary data on DNA diploidy[6] and immunohistochemical expression of p53[7,8] indicate that such markers have potential in the selection of patients for surveillance.

References:


Source URL:
http://www.patientcareonline.com/review-article/controversies-management-stage-i-seminoma-2

Links: