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LETTER TO THE EDITOR

Adjuvant postoperative radiotherapy for cutaneous melanoma

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Introduction

Although surgery is the mainstay of treatment for patients with cutaneous melanoma, a subset of patients present with local–regionally advanced disease and are at high risk of a local–regional recurrence after surgery alone [1]. Postoperative radiotherapy (RT) has been shown to reduce the likelihood of local–regional recurrence and may be given with either a conventional fractionation schedule at 2 Gy per once daily fraction to doses ranging from 60 to 70 Gy or a hypofractionated schedule such as 30 Gy in 5 twice weekly fractions [2–4]. The latter schedule is likely more cost-effective and logistically more attractive for a group of patients at high risk of distant metastases who might benefit from adjuvant systemic therapy. The purpose of this paper is to update our experience with adjuvant postoperative RT for patients treated with curative intent for high-risk cutaneous melanoma [5,6].

Material and methods

Between August, 1981 and November 2014, 112 patients with cutaneous melanoma were treated with surgery and postoperative RT with curative intent. Eighty-one patients (72%) were male and 110 patients (98%) were Caucasian. The median age was 62 years (range, 21 to >89 years). The primary site was head and neck in 80 patients (71%) and elsewhere in the remainder. Patients had one or more of the following factors thought to be high risk after surgery alone: recurrence after prior surgery, positive lymph nodes,

extracapsular extension, incomplete regional node dissection, incomplete or close (<5 mm) margins, gross residual disease and in-transit metastases. Sixty-three patients (56%) had cancers that were recurrent after prior surgery. Eighteen patients (16%) had in-transit metastases. Margins were negative in 84 patients (75%), close in one patient (1%), microscopically positive in 16 patients (14%), and gross residual disease was present in three patients (3%). Elective nodal RT was administered to eight patients (7%) who either had a clinically positive node excised or a positive sentinel lymph node biopsy without a completion dissection. The number of high-risk factors were: 1, 30 patients (27%); 2, 43 patients (38%); 3, 27 patients (24%); and 4 or more, 12 patients (11%).

Patients were treated with photons and/or electrons depending on the site and extent of the target volume. Intensity-modulated RT has been employed, when appropriate, since 2001. Eighty-four patients (75%) received 30 Gy in 5 twice-weekly fractions over 2.5 weeks; the remainder were treated with conventional fractionation at approximately 2 Gy per once daily fraction. Median follow-up times overall and for survivors were 2.8 years (range, 0.1 to 20.7 years) and 7.5 years (range, 0.9 to 20.7 years), respectively.

Statistical analyses were performed using SAS and JMP software (SAS Institute, Cary, NC). Time dependent outcomes including in-field local–regional control (LRC), overall LRC including out-of-field failures, distant metastasis-free survival, cause-specific survival, and overall survival were estimated using the Kaplan–Meier product limit method [7]. The level of statistical significance between strata of selected prognostic factors was tested with the log rank statistic.

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Complications were coded as severe if they necessitated hospitalization, surgical intervention, or were fatal [8].

Results

The 5-year in-field and overall (including out of field failures) LRC rates were 88% and 74%, respectively. The 5-year in-field LRC rates were 87% after 30 Gy in five fractions compared with 93% after conventional fractionation ($p=0.4587$); 88% for head and neck sites compared with 89% for other sites ($p=0.7673$); and 91% for 1 to 2 high-risk factors compared with 83% for 3 or more high-risk factors (0.2085).

The 5-year rate of distant metastasis-free survival was 51%.

The 5-year cause-specific survival rates were: 1 to 2 high-risk factors, 52%; 3 or more high-risk factors, 44%; and overall, 49% ($p=0.0924$). The 5-year OS rates were: 1 to 2 high-risk factors, 42%; 3 or more high-risk factors, 38%; and overall, 41% ($p=0.4068$).

No patient developed a severe complication. Late complications were observed in four patients (4%) including partial brachial plexopathy in two patients, chronic neuropathic facial pain in one patient, and osteoradionecrosis of the external auditory canal in one patient.

Discussion

The likelihood of a local-regional recurrence after surgery alone for cutaneous melanoma is related to a number of factors including the thickness of the primary lesion, the presence and number of positive regional nodes, and the presence of extracapsular extension [1,9–17]. Although postoperative RT probably does not significantly impact overall survival, it likely improves LRC for those at high risk for a local-regional recurrence after surgery alone [18]. One of the largest experiences has been reported by investigators from the M.D. Anderson Cancer Center where patients were treated with 30 Gy in 5 twice-weekly fractions over 2.5 weeks with LRC rates of approximately 90% for those irradiated to the head and neck or axilla, and approximately 74% for the ilioinguinal nodes [2–4].

Conclusions

Our outcomes are similar to those cited above with no significant difference in LRC after 30 Gy in five fractions compared with longer conventional fractionation schedules. The risk of severe complications after either is low. The advantages of the hypofractionated schedule is that it is likely less expensive and logistically more attractive for a group of patients at high risk for distant metastases who may be candidates for adjuvant systemic therapy.

Disclosure statement

The authors report no conflicts of interest. The authors alone are responsible for the content and writing of this article.

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