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Letters

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Comments on: *Thoracic Radiation Therapy Before Autologous Bone Marrow Transplantation in Relapsed or Refractory Hodgkin's Disease*, Tsang, *et al. Eur J Cancer* 1999, 35, 73–78

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WE READ with interest the recent paper by Tsang and colleagues [1] assessing the relationship between thoracic radiotherapy and treatment-related (TR) mortality in patients receiving high-dose chemotherapy (HDCT) and autologous bone marrow transplantation (ABMT) for relapsed or refractory Hodgkin's disease. The authors conclude that the scheduling of thoracic radiotherapy before, rather than after, HDCT and ABMT contributed to the high TR mortality. We do not feel that the evidence presented justifies this conclusion. The TR deaths appear to us to be mainly the result of radiotherapy volume, dose and previous chemotherapy, often including bleomycin and doxorubicin. The 4 patients who died of confirmed radiation pneumonitis all had extensive lung irradiation and included 1 patient treated by mantle with total body irradiation (TBI), 2 patients by mantle with bilateral lung irradiation to 16–17.5 Gy and one patient by mantle with unilateral lung irradiation to 15 Gy.

Our experience of mantle or mediastinal radiotherapy, not including lung, before HDCT and ABMT is of low toxicity and no TR mortality to date. Our patient group is comparable with that described by Tsang and colleagues. We have treated 92 patients (age range 13–52 years, median 26 years) with HDCT and ABMT with identical melphalan/VP 16 conditioning [2]. 61 of the 92 patients had mantle or mediastinal radiotherapy at 2–130 months (median 9) before the HDCT. 57 of these 61 patients had previous chemotherapy, including bleomycin and/or an anthracycline. There have been no TR deaths and no acute toxicity attributable to radiotherapy.

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We therefore feel that factors other than the scheduling of radiotherapy, including radiotherapy dose and volume and associated chemotherapy, are responsible for the reported high TR mortality. There is insufficient evidence to justify recommending thoracic radiotherapy after, rather than before, HDCT/ABMT.

1. Tsang RW, Gospodarowich MK, Sutcliffe SB, Crump M, Keating A. Thoracic radiation therapy before autologous bone marrow transplantation in relapsed or refractory Hodgkin's disease. *Eur J Cancer* 1999, **35**, 73–78.
2. Taylor PR, Jackson GH, Lennard AL, Lucraft HH, Proctor SJ. Autologous transplantation in poor risk Hodgkin's disease using high dose melphalan/etoposide conditioning with non-cryopreserved marrow rescue. *Br J Cancer* 1993, **67**, 383–387.

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Response from R.W. Tsang, *et al.*

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WE WELCOMED the comments of Lucraft and colleagues and we appreciate the opportunity to respond to their criticism. They raise the issue of whether the high treatment mortality rate we observed was more due to large volumes of lung irradiation rather than scheduling of radiation before autologous bone marrow transplantation (ABMT). Our data [1] indicate that both factors were contributory, and we have discussed this in detail in our paper. Amongst the 11 patients radiated with fields less extensive than a mantle, there were still three treatment-related deaths (pts 5, 7, and 8, Table 4). The scheduling of radiation within 50 days before BMT was clearly shown to associate with a high risk of mortality in Figure 2. It is clear to us that delivering large volume thoracic radiation immediately (that is within 1-2 months) before ABMT to a dose of 35 Gy is too risky to be continued. However, as stated in our discussion, the optimal strategy to reduce this risk has not been clearly defined. We chose to

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deliver the radiation postABMT, and we discussed the rationale for this choice. To keep radiation scheduled preABMT, an alternative approach would be to use more restricted fields, with or without total nodal irradiation [2]; or increasing the interval between radiation and ABMT. The timing of radiotherapy (RT) in relation to ABMT remains controversial and should be studied prospectively. Lucraft and colleagues stated that in their experience with 61 patients where radiation was given preABMT, no treatment-related deaths occurred. However, the median interval from radiation to transplant was 9 months, longer than in our cohort. This led to a suspicion that in most of their patients, radiation was given as part of initial treatment and not as part of the 'salvage treatment plan' at the time of relapse or chemotherapy induction failure. When we examined our own data, thoracic radiation given as initial treatment remote from ABMT did not lead to postABMT toxicity.

1. Tsang RW, Gospodarowicz MK, Sutcliffe SB, Crump M, Keating A. Thoracic radiation therapy before autologous bone marrow transplantation in relapsed or refractory Hodgkin's disease. PMH Lymphoma Group, and the Toronto Autologous BMT Group. *Eur J Cancer* 1999, **35**, 73–78.
2. Yahalom J. Do not miss a second (and possibly last) chance to cure Hodgkin's disease. *Int J Radiat Oncol Biol Phys* 1997, **39**, 595–597.