6. Nooter K, Sonneveld P, Oostrum R, Herweijer H, Hagenbeek A, Valerio D. Overexpression of the *mdr*1 gene in blast cells from patients with acute myelocytic leukemia is associated with decreased anthracycline accumulation that can be restored by cyclosporin-A. *Int J Cancer* 1990, **45**, 263–268.
7. Herweijer H, Sonneveld P, Baas F, Nooter K. Expression of *mrd*1 and *mrd*3 multidrug-resistance genes in human acute and chronic leukemias and association with stimulation of drug accumulation by cyclosporine. *J Natl Cancer Inst* 1990, **82**, 1133–1140.
8. Nooter K, Sonneveld P, Janssen A, *et al.* Expression of the *mdr*3 gene in prolymphocytic leukemia: association with cyclosporin-A-induced increase in drug-accumulation. *Int J Cancer* 1990, **45**, 626–631.
9. Golomb HM. The treatment of hairy cell leukemia. *Blood* 1987, **69**, 979–983.
10. Catovsky D, Foa R. *The Lymphoid Leukaemias*. London, Butterworths, 1990.
11. Dalton WS, Grogan TM, Meltzer PS, *et al.* Drug-resistance in multiple myeloma and non-Hodgkin's lymphoma: detection of P-glycoprotein and potential circumvention by addition of verapamil to chemotherapy. *J Clin Oncol* 1989, **7**, 415–424.
12. Sonneveld P, Nooter K. Reversal of drug-resistance by cyclosporin-A in a patient with acute myelocytic leukaemia. *Br J Haematol* 1990, **75**, 208–211.

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Lymph-node Irradiation in Operable Breast Cancer and Statistical Power

Rodrigo Arriagada and Lars-Erik Rutqvist

PROFESSOR Veronesi *et al.* (vol. 26, pp. 668–670) recently updated results of the Milan breast conservation trial. Patients with positive axillary nodes were included in a second randomisation during the first 3 years of the trial to evaluate the effect of adjuvant radiotherapy to supraclavicular and internal mammary nodes. Results did not show improved survival of treated compared with non-treated patients. Veronesi *et al.* did not state the number of randomised patients. However, if we assume that accrual was constant during the period of patients' entry (88 per year) and that all node positive patients were included (26%), we have estimated that approximately 70 patients may have been studied. If lymph-node irradiation can improve long-term survival by 10% (similar to other adjuvant treatments) the number of patients needed to test this hypothesis is more than 700 (α risk = 0.05, β risk = 0.10). A trial of this size would have a statistical power of 90%—i.e. only a 1:10 chance of concluding that there is no difference when actually there is. The second randomisation of the Milan trial has a statistical power of only 10%—i.e. a 9:10 chance of concluding that there is no difference when really there is. Therefore, the trial is too small to give a definite answer to the question raised.

There is retrospective [1] and prospective [2, 3] evidence that megavoltage lymph-node irradiation with adequate doses can decrease the distant metastasis rate, and consequently may have an effect on overall survival in node positive patients. Because of low statistical power, the Milan trial does not add much knowledge to this issue. Unfortunately, a quick reading of the Milan paper might result in conclusions that are not supported by reported data [4].

1. Arriagada R, Lê MG, Mouriesse H, *et al.* Long term effect of internal mammary chain treatment. Results of a multivariate analysis of 1204 patients with operable breast cancer and positive axillary node. *Radiother Oncol* 1988, **11**, 213–222.
2. Höst H, Brennhovd IO, Loeb M. Postoperative radiotherapy in breast cancer. Long-term results from the Oslo study. *Int J Radiat Oncol Biol Phys* 1986, **12**, 727–732.
3. Rutqvist LE, Cedermark B, Glass U, *et al.* Radiotherapy, chemotherapy, and tamoxifen as adjuncts to surgery in early breast cancer: a summary of three randomized trial. *Int J Radiat Oncol Biol Phys* 1989, **16**, 629–639.
4. Yarnold JR. Breast conservation and management of early breast cancer. *Eur J Cancer* 1990, **26**, 653–655.

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Reply by U. Veronesi *et al.*

THE TRIAL was designed to compare Halsted mastectomy and quadrantectomy plus radiotherapy (QUART) in terms of relapse-free and overall survival.

In our analysis we focused on overall survival, regardless of adjuvant therapies. 4 subgroups have been identified and the log rank test has been carried out accordingly (Table 1).

We agree with Dr Arriagada and Dr Rutqvist that in our paper the sentence concerning radiotherapy might be confusing. However, 16/35 unfavourable events have been observed in subset B radiotherapy and 20/33 in subset C adjuvant radiotherapy; these findings are at the basis of our statement to which, however, no statistical relevance was attributed in the paper.

Table 1.

	A N−	B N+ no adjuvant	C N+ +adjuvant regional RT	D N+ + adjuvant CT
Halsted	263	15	15	56
QUART	257	20	18	57
Total	520	35	33	113

N− = node negative; N+ = node positive; RT = radiotherapy; CT = chemotherapy.

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