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BEAM Protocol and Autologous Bone Marrow Transplantation in First Chemosensitive Relapse of Non-Hodgkin's Lymphomas

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PATIENTS WITH intermediate or high grade non-Hodgkin's Lymphomas (NHL) who fail on conventional chemotherapy either with primary resistant disease or after relapse are rarely cured by conventional salvage chemotherapy. Since 1978 [1], many reports [2–8] have been published about the efficacy of high-dose chemotherapy with or without total body irradiation and autologous bone marrow transplantation (ABMT). But a wide range of results was observed, with disease-free survival between 15% and 69%. We report long-term results of patients treated in four French ABMT centres between June 1983, and December, 1987. The patients were in first chemosensitive relapse of intermediate or high grade NHL by the BEAM protocol (carmustine, etoposide, cytarabine arabine, melphalan) and ABMT.

19 patients were included in this retrospective study. Age was 7–61 years (median 33). There were 15 men and 4 women. According to the National Cancer Institute Working Formulation, there were five mixed diffuse, six diffuse large cell, three immunoblastic, three lymphoblastic, and two Burkitt's lymphomas. At diagnosis, 10 patients had constitutional symptoms and 9 had extranodal disease with two or more localisations in 3. At diagnosis 10 patients had bulky disease (defined as a node larger than 10 cm in its greatest diameter, or extensive abdominal disease) and 5 had more than three nodes involved sites. Median duration of the first complete remission was 10 months (range 5–41) with 8 relapses on therapy and 11 off therapy. 8 relapses were localized in nodes, 2 in nodes and bone marrow, 3 were nodal and extranodal and 6 were pure extranodal diseases (with 3 pure, central nervous system relapses). At ABMT, 15 patients were in second complete remission and 4 were in second partial remission.

All patients received carmustine (300 mg/m^2 on day 1), etoposide and cytarabine (both 100 mg/m^2 every 12 h on days 2–5) and melphalan (140 mg/m^2 on day 6). 4 patients also received a boost of radiotherapy at 20 Gy in involved fields after ABMT. *Ex vivo* purging of bone marrow was done in 7 patients; immunological purging with two pan B monoclonal antibodies (CD20) in 3 cases [9], and chemical purging with Asta Z at adapted doses [10] in 4 cases.

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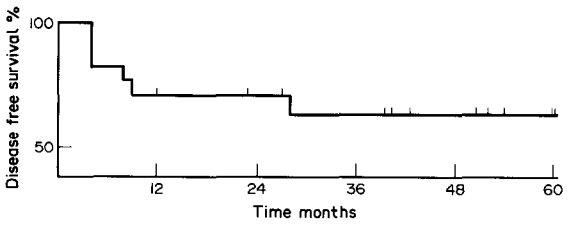

Fig. 1. Kaplan-Meier estimate of the probability of disease-free survival. Each tick represents a surviving patient in complete remission.

12 patients are alive and 11 are disease-free with an actuarial disease-free survival of 62% and a median follow-up of 54 months (24–72) (Fig. 1). 6 patients relapsed 4, 4, 4, 8, 9, and 28 months after ABMT. 2 patients died during therapy, 1 of *Aspergillus* pneumoniae at day 15 and 1 of sudden death at day 35. The median recovery of leucocytes to over 10^9/l was day 19 (10–29); of neutrophils to over 0.5 × 10^9/l, day 20 (10–30); and of platelets to over 50 × 10^9/l, day 25 (14 to after 150).

Thus ABMT can induce a long-term disease-free survival of about 60% in first chemosensitive relapses of NHL. BEAM was an efficacious conditioning regimen with low toxicity in this type of patient.

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Correction

The role of tamoxifen in the prevention of breast cancer.— We apologise to Mr Ian Fentiman for omitting four words from this Comment and Critique (Vol. 26, no. 6, p. 655). The third sentence of the third paragraph should have read: "The most easily recognised factor is a family history (first-degree relative developing the disease before age 50 or two first-degree relatives after age 50)."