common and others less so. They also show that the changes are proceeding at different rates at different ages and in different countries, and sometimes even in different directions. Recognition that such changes are occurring provides evidence for those concerned with public health about the efficacy of their progammes for prevention, and clues for the research workers about where to look for environmental or behavioural causes that have yet to be detected.

The pioneering work of Dorn, Clemmesen and Segi has been acknowledged, and it is appropriate that the final chapter contains Aoki and Kurihara's appreciation of Segi's contribution. It records how Segi, with characteristic modesty, acknowledged his debt to the example of his predecessors. It is a debt that all who use cancer incidence data share, and it is hoped that the production of this volume may go some way to repay the share of those who have contributed to it.

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Letters

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Economic and Clinical Evaluation of Therapy of HIV-related Non-Hodgkin's Lymphoma with Chemotherapy and Granulocyte Colony-stimulating Factor (G-CSF)

U. Tirelli and E. Vaccher

TREATMENT OF HIV-related non-Hodgkin's lymphoma (NHL) with chemotherapy is associated with a substantial risk of side-effects, in particular bone marrow toxicity, that precludes therapy in the majority of patients [1, 2]. Granulocyte colony-stimulating factor (G-CSF) could partially overcome this side-effect [3], but the cost is high. However, G-CSF could theoretically reduce the overall cost of the treatment, with a decrease of required antibiotic therapy and days of hospitalisation.

This study reports the monoinstitutional experience of treatment of HIV-related NHL with chemotherapy and prophylactic G-CSF, in terms of the cost of the overall treatment, in addition to the evaluation of toxicity. A comparison of 37 consecutive patients who had received intensive chemotherapy regimens, 19 without G-CSF from July 1989 to June 1991, and 18 with G-CSF from July 1991 to September 1992, immediately after its availability, was carried out. G-CSF (5 μg/kg/day) was given subcutaneously 24 h after chemotherapy for 13 days in all cycles. The two groups of patients were comparable in terms of stage and regimens employed, i.e. the LNH84 regimen [4] and the CHOP-like regimen CHVmP/VCR-BLM [5] given for three to six cycles.

The mean cost of one day of hospitalisation at our division is approximately $450. For the cost evaluation, the following items have been considered: (1) daily cost of hospital stay ($263); (2) antibiotic prophylaxis against *Pneumocystis Carinii* pneumonia and antifungal prophylactic therapy (daily cost/patient $22); (3) antibiotic therapy administered during haematologic toxicity (parentheral cephalosporin plus aminoglicoside therapy, mean daily cost/patient $67); (4) supportive therapy including diagnostic procedures (mean daily cost/patient/toxic episode $90); (6) anti-retroviral therapy (daily cost/patient $8); (7) recombinant G-CSF (the actual cost of a 300 mg vial in Italy is $100).

Therapy and hospital cost did not change over the time period of the study.

At our centre the policy at that time was that patients with HIV-related NHL were hospitalised both for the administration of cycles of chemotherapy and when chemotherapy-related toxicity and HIV-related infections were observed. This approach was based on the high risk of severe complications associated with intensive chemotherapy in such patients with unfavourable NHL and severe immunodeficiency, and to the peculiar features of our HIV-positive population, i.e. the usual distant geographical area of residence, and logistic problems connected with the lifestyle of these patients who are often drug users. This policy did not change during the time of the study so that the two groups of patients were homogeneous for the cost evaluation.

G-CSF significantly reduced the duration of nadir to a mean of 8.4 days compared with 10.8 days in the control group ($P = 0.006$). Among patients with a CD4 count ≥ 200 mm^3, the nadir WBC was significantly higher in the G-CSF than in the control group (mean 1293 ± 143 versus 410 ± 285; $P = 0.009$). The event rates for febrile neutropenia and for culture confirmed infections were comparable among the two groups. The mean number of chemotherapy cycles for patients and the proportion of patients who receive full doses of chemotherapy were not significantly different in the two groups.

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Table 1. Hospitalisation and cost ($)

Cost*	G-CSF	Control	*P* value
Number of hospitalisations	18	19	NS*
Mean toxicity-related days of hospitalisation ± S.E.	6.4 ± 9.1	18.0 ± 13.2	0.003†
Mean hospitalisation + G-CSF cost/cycle ± S.E.	$2282 (± 1345)	$3232 (± 2283)	NS†

One day of hospitalisation is about $450. * Fisher's test χ^2. † Mann–Whitney test.

However, the mean duration of delays between cycles was reduced from 9 days in the control to 4 days in the G-CSF treated patients ($P = 0.01$). The overall response rates were similar, being 78% in the group treated with G-CSF and 88% in the control group.

As shown in Table 1, while the number of hospitalisations was similar in the two groups, there was a significant decrease in the mean duration of hospitalisation for toxicity per patient treated with G-CSF compared with the control group (6.4 ± 9.1 versus 18 ± 13.2 days; $P = 0.003$). Taking into consideration the cost of G-CSF and the cost of hospitalisation, the mean cost per cycle was $3232 ± 2283 in patients treated with chemotherapy without G-CSF compared to $2282 ± 1345 in patients treated with G-CSF. This difference was non-significant.

In conclusion, the prophylactic use of G-CSF in patients with HIV-related NHL receiving intensive chemotherapy is associated with a significant reduction of treatment-related myelosuppression, with a decrease of the overall cost of the treatment, although not at a statistically significant level. Further studies should be undertaken in order to evaluate whether G-CSF can be efficaciously given for a shorter period of time in order to further decrease the cost of the overall treatment. Finally, with the experience accumulated in these years, some patients with AIDS-related NHL can be safely treated with intensive chemotherapy regimens and G-CSF also in an outpatient setting.

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Treatment of the Carcinoid Syndrome With a Depot Formulation of the Somatostatin Analogue Lanreotide

H. Scherübl, B. Wiedenmann, E.O. Riecken, F. Thomas, E. Böhme and U. Räth

SYMPTOMATIC CONTROL of the carcinoid syndrome can be achieved by somatostatin therapy in as many as 50–87% of all patients [1, 2]. In addition, in a small percentage (4.4%) of patients with neuroendocrine tumours of the gastroenteropancreatic system, partial regression, defined as tumour shrinkage by 30% or more, has been observed after 3 months of treatment with 200 μg octreotide, subcutaneously (s.c.), every 8 h [3]. Due to the inconvenience of three daily s.c. injections of somatostatin analogues, such as octreotide or lanreotide, a depot formulation of lanreotide has been developed [4–6]. The purpose of this study was to evaluate the efficacy of fortnightly intramuscular (i.m.) injections of 30 mg of depot lanreotide in patients with carcinoid syndrome.

All patients included in the study were ambulatory, maintained a reasonable state of nutrition, had histologically-confirmed metastatic carcinoid tumour disease with elevated urinary 5-hydroxy-indolic acid excretion, and suffered from carcinoid syndrome. Moreover, all patients had measurable tumour masses to serve as objective indicators of response to therapy. All patients gave informed consent to participate in the study, which was approved by the ethics committee of Benjamin Franklin Medical Center. Patients' characteristics are shown in

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