(*i. e.*: patients with NS or LP histology, no B symptoms, and a No. of involved sites ≤4; *Cancer 1989, 63: 1799–803*) and no more than one of the negative prognostic factors (male sex, age >40, ESR > 40, No. of involved sites >2, or bulky palpable nodes) identified in another analysis.

Patients and Methods: Between July 1988 and December 1994 we treated 27 previously untreated adult patients with CS I or II HD without bulky mediastinal disease who had a predicted probability of abdominal involvement ≤10% and no more than one negative prognostic factor. Twenty-six patients received RT to mantle field only and were considered evaluable and one patient that received subtotal nodal RT was excluded. Eight patients had CS I and 18 had CS II HD, 21 patients had NS and 5 had LP histology. Negative prognostic factors were male sex in 10 patients, ESR > 40 in two, and No. of sites involved >2 in 4 patients **Results:** With a median follow-up of 62 months, 20 patients remain with no evidence of relapse and 6 have relapsed. The 5-year DFS was 76% and the 5-y survival was 100%. The 5-y DFS was 88% in patients with CS I and 71% in patients with CS II. In patients with CS II disease, the risk of relapse increased as the predicted probability of abdominal involvement increased (p = 0.06; Logrank test for trend).

Conclusions: The group of patients with CS I HD defined above can be spared the morbidity of laparotomy and subdiaphragmatic RT and still have high probability of DFS. Further study is necessary to establish what subgroup of CS II patients would be suitable for this approach but our data suggest that the predicted probability of abdominal involvement could be useful to identify that subgroup.

1225 PUBLICATION

Relation between IL-10 and IL-12 secretion in Hodgkin's disease (HD)

S. Viviani, P. Notti, V. Bonfante, E. Camerini, H. Soto Parra, A. Santoro.
Istituto Tumori, Milan, Italy

Advances in tumor immunobiology have contributed to explain the mechanisms of the cancer-related immunosuppression. IL-10, mainly produced by Th2-lymphocytes, inhibits in vitro the secretion of the two main antitumor cytokines IL-2 and IL-12. IL-2 serum levels proved to be low in several advanced tumors, including HD. In contrast data from our own study, suggest increased IL-12 serum levels in untreated HD pts. Since in vitro studies showed that IL-12 may inhibit the secretion of the suppressive cytokine IL-10, this study evaluated the relation between IL-12 and IL-10 secretion. IL-10 serum levels of 68 untreated pts were correlated to those of IL-12. Characteristics were: M/F: 41/27, median age 27, range 16–61, A/B symptoms: 36/32, stage I + II/III + IV: 49/19, ≤3/>3 sites: 36/32. IL-10 and IL-12 serum levels were measured by enzyme-linked immunoassay kits, and normal values (95% confidence limits) ranged from 0 to 6 pg/ml and 10 to 89 pg/ml respectively.

High levels of IL-10 were observed in 31/68 pts (46%), and abnormally high serum levels of IL-12 were discovered in 27/68pts (40%). There was no correlation between IL-10 and variables analyzed as stage, disease extent and B symptoms. No significant difference in IL-10 mean serum levels was observed between pts with high IL-12 compared to those with low or normal IL-12 values (18 ± 11 vs 8 ± 1 pg/ml; median +/− S.E).

These preliminary data demonstrate an enhanced IL-10 secretion in HD. Moreover, despite the in vitro inhibition of IL-12 on IL-10 secretion, we found no correlation between IL-12 and IL-10 production in HD pts.

1226 PUBLICATION

Combined modality treatment and adjuvant lumbo-splenic radiotherapy (RT) in supra-diaphragmatic (SD) clinical stage (CS) I–II Hodgkin disease (HD) results in decreased rates of infra-diaphragmatic (ID) nodal relapses (R)

U. Yilmaz, J.P. Jais, B. Desablens, P. Moreau, J. Brière, M. Gardembas, A. Lemevel, P. Casassus, P.Y. Le Prisé, V. Delwail, J.M. Andrieu For the Paris-Ouest France (POF) Group. *Dokuz Eylül Institute of Oncology, Izmir, Turkey and Oncology and Biostatistics Department, Faculté Necker, Paris, France*

From 10/81 to 9/88, 262 patients (pts) aged 15 to 65 yr with CS I–II HD were enrolled in the POF 81/12 trial. 3 courses of ABVD (Adria 25, Bleo 10, Velban 6, DTIC 375 and MPred 120 mg/m2 on d1&15). Pts in complete or partial remission (CR or PR) received extended field (F) RT (involved F 40 Gy, adjacent F 30 Gy, lumbosplenic 30 Gy). CR was obtained in 258 pts. In 12/96, 23 R (8.9%) were observed 3 to 130 mo (median 32) after the end of RT. 3 pts (1.2%) had extranodal (EN) R, 15 pts (5.8%) had nodal (N) R, 5 pts (1.9%) had simultaneously EN and N R. Only 5 pts (1.9%) had ID nodal R. (1 in lumboaortic region, 1 in pelvis and the 3 others in ID + SD +/− EN areas. Among 15 pts who had a 2nd CR (65.2%), 6 had a 2nd R out of which 1 was ID. Thanks to primary CT plus prophylactic lumbosplenic RT, a very low rate of ID R (1.9%) was obtained in clinically staged SD HD. No life-threatening infection was observed during initial treatment and only 1 pt acquired hypertension (≥150/100 mm Hg).

Endocrine tumours

1227 ORAL

Differences in photosensitiser induced fluorescence of rat adrenal chromaffin cells and pheochromocytoma cells (PC 12)

M. Colombo-Benkmann[1,2], J. Gahlen[1], M. Muhm[1], N. Senninger[2], C. Heym[3], C. Herfarth[1]. [1]*Dept. of Surgery, Univ. of Heidelberg, INF 110, 69120 Heidelberg;* [2]*Dept. of Surgery, Univ. of Münster, Waldeyerstr. 1, 48149 Münster;* [3]*Institute for Anatomy and Cell Biology, INF 307, 69120 Heidelberg, Germany*

Adrenal glands photosensitised with meso-tetra (hydroxyperoxy)chlorin (mTHPC) exhibit an intense fluorescence. The objective of our experimental study was to investigate whether adrenal medullary cells and pheochromocytoma cells of the rat (PC 12) show a selective uptake of mTHPC. The overall objective was to evaluate whether photodynamic therapy may be feasible for adrenal tumours.

4 Wistar rats were injected mTHPC (0.5 mg kg^{-1}) 48 hours before perfusion, which was carried out after a lethal dose of Nembutal® with Zamboni fixative. 4 Wistar rats received reserpine (2.5 mg/kg BW sc; 5 days q.d.) and treated in the same way as the first group. Shock frozen adrenals were cut into 20 μm sections. PC 12 cells were incubated with mTHPC (0.5 mg/l culture medium) for 24 and 48 hours. Examination of tissues and cells was performed by fluorescence microscopy.

Adrenal medullae did not show any fluorescence except for singly scattered cells. However reserpine treatment, which induces pheochromocytoma in rats, enhanced medullary fluorescence, with several cell clusters of intensely fluorescing cells. The adrenal cortical cells showed an intense cytoplasmatic fluorescence, not being altered by reserpine. In vitro, viable PC 12 cells showed an intense cytoplasmatic mTHPC-induced fluorescence. Cells lying singly or in small groups showed a more intense fluorescence than confluent cells.

The present results implicate for the first time the possibility of laserlight-induced fluorescence diagnosis and photodynamic therapy of adrenal tumours.