51 (31.6%) deviations in ballistics, with **22 (13.6%) major deviations.** Some of these major deviations were voluntary (block of the upper neck in case of no cervical involvement), most of the others were due to an incomplete coverage of the upper mediastinum and/or the hilar nodes areas. Considering the doses, **a major deviation (DIF ≥ 10%) was observed in 39.7% of the patients.** Targets inadequately exposed were cervical nodes (57%), upper mediastinum (13%) and lower mediastinum (30%). Type of irradiation (STNI or IF) did not influence the rate of protocol violations.

**Conclusion:** a quality control program seems mandatory in multicenter trials of Hodgkin's disease. This type of review is one of the best school for radiation oncologists.

1184 ORAL

## Somatostatin receptor scintigraphy for the initial staging of Hodgkin's disease

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**Purpose:** Exact staging is important for the prognosis and treatment of patients with Hodgkin's disease (HD). In a prospective blinded study somatostatin receptor (SS-R) scintigraphy was compared with conventional staging methods for initial staging of patients with newly diagnosed HD.

**Methods:** 126 Consecutive patients underwent scintigraphy after i.v. injection of [111-In-DTPA-D-Phe-1]-octreotide, 220 MBq. SS-R scintigraphy and conventional diagnostic tests were interpreted independently and the results compared.

**Results:** The patient-based analysis yielded an overall sensitivity of 99% (125/126). In 28 patients (22%) the clinical stage was altered because of the result of SS-R scintigraphy. As a result the treatment plan was changed in 18 patients (14%). The lesion-based analysis showed an overall sensitivity of 94% (452/483). The sensitivity in the supra-diaphragmatic region was 98% (415/423) and 59% (32/54) in the infra-diaphragmatic region. In 4 lesions a false positive uptake of radioactivity was observed.

**Conclusion:** SS-R scintigraphy is positive in nearly all patients with newly diagnosed HD and appears to disclose sites of disease not revealed by conventional diagnostic tests. This new imaging modality provides a useful method of diagnostic evaluation in patients with HD.

1185 ORAL

## Four cycles of ABVD followed by involved field irradiation (IF-RT) is the treatment of choice for early-stage Hodgkin's disease (HD): 5-year results of a randomized trial

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In February 1990 we started a prospective randomized trial with the aim to assess the relative role of subtotal nodal (STNI) vs IF-RT after 4 cycles of ABVD in early stage HD (I bulky and/or B; IIA, IIA bulky, IIEA). The doses of RT ranged from 30 to 36 Gy to uninvolved and involved sites, respectively. A total of 114 consecutive patients staged without laparotomy are presently evaluable after a median follow-up of 42 months. Patient characteristics were well balanced between the two groups. Overall, 20% of the patients presented with bulky HD and 77% with NS histology. The median age was 28 years (range 17–64).

The actuarial 5 years results were as follows:

| (%) | ABVD→IF-RT | ABVD→STNI |
|---|---|---|
| Complete Response (CR) | 98 | 100 |
| Freedom from Progression | 94 | 95 |
| Overall Survival | 96 | 100 |

The majority of patients were in CR after ABVD, while only 8% who were partial responders achieved CR at the end of the combined therapy.

Treatment was completed within a median of 6 and 7 mo (range 5–9) respectively for the IF-RT and STNI arm and ABVD dose-intensity was 0.84. Treatment was well tolerated. Two male patients developed acute myocardial infarction (AMI): one pt during the second ABVD course and died, the other pt 12 mos from the end of therapy and is still alive. No other severe sequelae have been so far documented. Only 14% of men resulted azoospermic and 3% of women became amenorrheic. Present results confirm our preliminary observation and indicate that short-term ABVD followed by IF-RT is the treatment of choice for clinically staged favorable or unfavorable early HD.

1186 ORAL

## Alternating ChlVPP/PAB1OE is better than PAB1OE alone as initial chemotherapy for advanced Hodgkin's disease (HD): First results of a British National Lymphoma Investigation (BNLI)/Central Lymphoma Group (CLG) study

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This BNLI/CLG trial commenced in October 1992 and was prematurely concluded in April 1996 after the first interim analysis.

**Objective:** A randomised comparison of anthracycline-based chemotherapy PABlOE with alternating chemotherapy ChlVPP/PABlOE in advanced HD.

**Patients and Methods:** 682 patients (461 BNLI, 221 CLG) were randomised to either ChlVPP/PAB1OE (chlorambucil, Velbe, procarbazine, prednisolone alternating with prednisolone, Adriamycin, bleomycin, Oncovin and etoposide) or PABlOE alone.

**Results:** 604 patients are so far evaluable for response and survival analysis. The patient characteristics were balanced between the two treatment arms. In the ChlVPP/PABlOE arm the complete remission and freedom from progression rates are significantly higher (75% vs 60% and 72% vs 52% at 2 years, respectively). At present there is no significant difference in the overall survival between the two arms. There was significantly more grade III, IV toxicity for myelosuppression and infection in the ChlVPP/PABlOE arm.

**Conclusion:** Alternating ChlVPP/PABlOE is better than PABlOE alone as initial chemotherapy for advanced HD and will be a 'standard' therapy arm in the next United Kingdom Lymphoma Group randomised study.

1187 POSTER*

## CD22 as target for radioimmunotherapy of hematological malignancies of B-cell origin (non-Hodgkin's lymphoma, acute lymphatic leukemia and macroglobulinemia)

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**Purpose:** The aim of this ongoing study is to evaluate the therapeutic potential of the $^{131}$I-labeled anti-CD22 murine monoclonal antibody, LL2, as well as its humanized form (hLL2) in chemorefractory hematological malignancies of B-cell origin.

**Methods:** 21 patients with Non-Hodgkin's lymphoma (NHL) were treated with non-myeloablative, 3 with potentially myeloablative doses of $^{131}$I-labeled LL2. A patient with acute lymphatic leukemia (c-ALL) who had failed 6 high-dose chemotherapies received a myeloablative dose of $^{131}$I-labeled hLL2 IgG with allogenic stem cell transplantation. A targeting study was performed in a patient with macroglobulinemia.

**Results:** At mean tumor/whole -body radiation dose ratios of 9.6 ± 4.4, six of 17 assessable NHL patients experienced objective responses (complete and partial remissions). Although responses were seen at very low activities (complete remissions at ≤8 mCi), response rates increased with higher doses (66% CRs in the myeloablative trial). At a red marrow dose of 30 Gy (whole-body dose 3.5 Gy), the ALL patient went into complete remission. Excellent targeting was seen in macroglobulinemia. No second-organ toxicities were observed other than transient myelosuppression.

**Conclusion:** Radiolabeled LL2 is a promising agent for the treatment of NHL and leukemias of B-cell origin. Further clinical trials are ongoing. *(Supported in part by DFG Grant Be 1689/1-1/2 and USPHS Grant CA 39841 from the NIH.)*

*indicates Poster Discussion