all haematological departments and it allowed to standardise diagnostic criteria of these disease. Therefore, this increase can not be attributed to the diagnostics errors. The fast transformation of MDS in acute leukaemia (AL) (during 8–16 months) in patients from this regions was also suspected. Our findings are similar to Japanese experience after A-bomb explosions, where the appearance of AL from MDS has been shown as a feature of radiation leukaemia. The increase of MDS could be the first sign of the radiation leukemogenesis in Belarus, that was most heavy contaminated after Chernobyl explosion.

1343 POSTER

Alterations in functional activity of thyroid parafollicular cells in the course of chemoradiotherapy of children with Hodgkin's disease

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Patients and Methods: 18 patients with II–IV stade Hodgkin's disease, their age ranging from 6 to 15 years (Me – 11 years). Were administered multiagent chemotherapy (MAC) (3 courses of ChVPP plus 3 courses of B – DOPA) and radiotherapy (RT) on the involved areas. The level of calcitonine (C) in blood plasma (N – 6–30 pg/ml) was measered employing the radioimmunologic method (ELSA – hCT kit, Franse) prior to the treatment, before each MAC course, before RT on neck area and after the completion of it.

Results: Before commencing of the treatment, C content in all the children was within the normal range (mean 16.9 ± 2.2 pg/ml, ranging from 10.3 to 2.5 pg/ml). No significant differences in the hormone level were found in patients with local and advanced disease (stade II – 13.7–2.4 pg/ml, stage IV – 12.5 ± 2.5 pg/ml). Over the first courses of MAC the changes in the hormone concentration were of wave – like nature: a sharp decrease after ChVPP regimen and then a rise to the initial level after B – DOPA. The data suggest that cytostatic agents included in ChVPP regiment or at least one of them produce a toxic effect on parafollicular cells (PFC) of the thyroid gland (TG). By MAC completion this pattern vanished, and gradual reduction of C down to 7.8 ± 0.3 pg/ml was observed (in 2 times). In 48% of the patients the C level below normal.

The changes in C content in blood plasma at neck irradiation depended on the dose delivered. After radiotherapy at a dose of 20 Gy the C level remained within the normal range (8.5 ± 0.91 pg/ml) and corresponded to its level at the time of MAC completion. An increase in the dose to 30 and 40 Gy resulted in the fall of the C level down to 6.8 ± 0.9 pg/ml and 4.2 + 0.03 pg/ml respectively, which is 1.2- and 1.8-fold lower that the C level at MAC completion. A month later after RT completion, the C level continued to decrease and lowered to 3.4 ± 0.05 pg/ml.

Conclusion: Both MAC and RT reduce functional activity PFC of TG, the degree of its inhibition depending on the radiation dose delivered.

1344 POSTER

Tailored-treatment for early stage Hodgkin's disease

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Purpose: To study the value of risk-adapted treatment in non-laparotomized patients (pts) with stage I–II Hodgkin's disease (HD).

Methods: From 1989 to 1996, 84 pts with clinically-staged supradiaphragmatic HD (median age 30 y, range 16–79 y; M/F = 38/46; clinical stage I/II = 16/68; LP/NS/MC histology = 6/54/23) were treated according to prognostic factors at presentation. Fifty-seven pts with one or more of the following features were defined as unfavorable group (UF): age > 50, "B" symptoms, Bulky disease (≥10 cm), ≥4 involved sites, "E" lesion, ESR > 50, LD histology. They received 6 cycles of MOPP/ABV hybrid chemotherapy (M/A) followed by mantle field irradiation (49 pts) or chemotherapy alone (8 pts). Twenty-three pts with no adverse features were defined as favorable group (F), and were treated by subtotal nodal irradiation (14 pts) or 4 cycles of M/A combined with mantle irradiation (9 pts). Four patients had a very favorable presentation (VF) of stage I high cervical disease, and received mantle irradiation alone.

Results: All pts achieved complete response. With a median follow-up of 43 m (range 7 to 109 m) there have been 6 relapses, 1 in the F group and 5 in the UF group. 5-y failure-free survival was 89% (VF/F/UF = 100/98/86%), and 5-y cause-specific survival was 98%, as only one patient died of disease. There were no toxic deaths and one patient developed mesothelioma as second primary tumor.

Conclusion: Prognostic-factor tailored treatment is an effective and well-tolerated therapy for early clinically- staged HD.

1345 POSTER

Relative dose intensity (RDI) related to international prognostic index (IPI) in chemosensitive elderly patients with aggressive non-hodgkin lymphoma (NHL). No benefits on disease-free survival (DFS) in high-risk patients

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Purpose: RDI and IPI are prognostic factors in elderly patients (pts) survival with aggressive NHL. To determinate the influence of RDI, we analyzed the risk of relapse, stratified on each group IPI, in chemosensitive pts treated with conventional CHOP.

Patients: Within a 14 years period, 261 elderly pts with NHL were treated with CHOP. Of this group, we analyze 165 pts with complete response (63%). Histology was intermediate-grade or immunoblastic, according WF. The median age was 67 years (R: 60–84), 97 (59%) female, elevated LDH level in 33 (20%), Ann Arbor stage I–II: 100 (61%) and III–IV: 65 (39%), performance status: 0–1 in 138 (84%) and >1 in 27 (16%). IPI subgroups low-risk (LR) 72 (44%), intermediate-low (IR) 61 (37%), and intermediate-high/high (HR) 32 (19%).

Results: The median RDI, according to Hryniuk method, achieved was 0.82, and the total-dose delivery was 94% planned chemotherapy. The median RDI were LR: 0.81; IR: 0.80; HR: 0.78, without significant difference. With median follow-up 41 months, relapsed occurred in 55 pts. The median DFS was 71 months (CI95%: 36–105), the 4-years PFS rates were in LR: 78%, IR: 50%, and HR: 20%, with significant differences (p = 0.001). When the results of the study were stratified in 2 groups: a) below median RDI, and b) over median RDI. We found that 4-years DFS in LR pts (67% vs. 80%, p = 0.04), and in IR pts (38% vs. 63%, p = 0.001), both with significant differences. In HR pts (22% vs. 22%) no significant differences.

Conclusions: This data shows, in elderly pts with NHL treated with CHOP, a DFS benefit in LR and IR pts who received RDI over median (>0.82). In HR pts, the RDI showed no impact in decreasing the risk of relapse. We suggest that, in these high-risk pts, the indication of full doses is controversial and should be evaluated.

1346 POSTER

Primary adult Western-type intestinal lymphoma (PAWIL) in immunocompetent patients: Prognostic factors, patterns of relapse and therapeutic outcome

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Purpose: To analyze prognostic factors, patterns of relapse and impact on survival and toxicity of surgical radicality in immunocompetent pts with PAWIL, focusing on diffuse large-cell subtype (DLCL).

Patients and Methods: 42 HIV– pts with PAWIL ('86–'98) were reviewed. Pts with Burkitt's (n = 2), indolent (n = 4), mantle-cell (n = 4), and peripheral T-cell (n = 1) lymphomas were excluded. Study group consisted of 31 pts with DLCL (20 M; 11 F): 21 had limited disease (stage I–II; LD) and 10 had advanced disease (stage IV; AD). Median age was 61 ys; 13 pts had ECOG-PS >2; 11 had B-symptoms; 11 had bulky disease; 19 had LDH ratio >1. Risk was low (IPI < 2) in 13 cases, intermediate (2–3) in 11 and high (4–5) in 7. Extranodal site was small bowel in 16 cases, colon-rectum in 11, both in 4. Pts with LD were treated with surgical resection followed by anthracycline-containing chemotherapy (CHT). Surgical resection was complete in 9 cases. Four pts with stage II2X did not complete the planned treatment because of fatal surgical complications. Pts with AD were treated with CHT alone.

Results: There were no cases of bleeding or perforation during CHT. Thirteen pts with LD achieved a CR; 4 had PD. Six pts with AD achieved a CR; 4 pts had PD. Four responders (2 with LD) relapsed. Sites of failure were abdomen (n = 9), central nervous system (CNS, n = 2) and skin (n = 1). Fourteen pts are alive (13 NED) with a median follow-up of 67 months (5-yr OS: 43%). Ten pts died of NHL and 7 of other cause (3 NED). Five-yr

OS for stage I, II1, II2, and IV were 75%, 67%, 29%, and 30%, respectively. Five-yr OS for low-risk, intermediate-risk and high-risk pts were 74%, 30% and 0% (p = 0.02). The independent prognostic factors were age (p = 0.03), PS (p = 0.01), stage (p = 0.01), B-symptoms (p = 0.05), and LDH level (p = 0.01). Primary site (small vs. large bowel; p = 0.34), CHT regimen (CHOP vs. MACOP-B; p = 0.35) and surgical radicality (p = 0.44) did not influence outcome. Bulky disease was related to lethal toxicity (X2; p = 0.05).

Conclusions: A limited surgical resection followed by anthracycline-containing CHT was an effective and safe treatment for pts with stage I or II1 PAWIL subtype DLCL. Pts with stage II2 had a worse survival, which may be explained by the high incidence of lethal complications observed in cases with bulky disease that underwent a more extensive resection. Since surgical radicality does not influence survival, to restrict debulking to the site of high risk of perforation is advisable to avoid lethal complications and CHT delay. Pts with AD should be managed with an IPI risk-related therapy, taking into account that one third of relapses, especially in pts with bulky disease and very high LDH levels, involved the CNS. These observations deserve to be confirmed, and their therapeutic relevance defined, in a larger multicentric series.

1347 POSTER

Extranodal Non-Hodgkin's lymphoma of the testis

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This study covers a period of 96 months, during which 396 patients aged 11–80 and suspected of having testicular tumor underwent orchidectomy. After rapid section diagnosis, all patients underwent inguinal semi-castration with ligature of the spermatic cord. After final diagnosis of malignant lymphoma and its classification, precise staging was conducted. Once the individual stages were determined (all were IE), 19 of the 20 patients were administered CHOP polychemotherapy: 750 mg/m^2 cyclophosphamide were quickly injected i.v. on Day 1; 50 mag/m^2 adriamycin i.v. as a bolus injection on Day 1; 1.4 mg/m^2 vincristine i.v. (for a maximum of 2 mg/m^2) as a bolus injection and 100 mg of prednisone orally on Days 1–5. This therapy regimen was administered every 28 days for a total of four courses. One of the 20 patients received only radiotherapy of the para-aortal and pelvic lymph node with 3600 cGy. Staging examinations were conducted every three months on all of the patients. 17 of the 20 patients evinced a highly malignant B-cell type Non-Hodgkin's testicular lymphoma; 14 of the patients had a centroblastic lymphoma; 3 of the 20 were diagnosed with immunoblastic lymphoma; and one patient had a highly malignant T-cell lymphoma. Surprisingly, two patients evinced pleomorphic immunocytoma which contained, however, a very high proportion of immunoblasts, some of which were already differentiating into immunoblastoma. For 19 of 20 patients, staging examinations showed that only one testicle was afflicted; while in one patient, both testicles had been simultaneously infiltrated by centroblastic Non-Hodgkin's lymphoma, although here as well, no other organs had been affected, Hence, stage IE applied to all 20 patients. The median age of the patients with extranodal testicular lymphoma was 57.3. During the 96-month period of observation, no relapses occurred. After four years, one patient did have a cerebral neuroblastoma, to which he succumbed. The remaining 19 patients are still alive, and in none of them has a tumor relapse or remote metastasis been found thus far.

1348 POSTER

Bone marrow biopsy in patients with Hodgkin's disease (HD): Is gold standard really gold?

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Purpose: Bone marrow (BM) biopsy is still used as an essential part of staging of patients with HD. The aim of this retrospective study was to determine how many cases of BM invasion call be missed by routine BM biopsy.

Materials: Unilateral Jamshidi BM biopsy was obtained from the posterior iliac crest of 44 patients with HD. Diagnostic sings of BM invasion were as follows: findings of Red-Sternberg cells or their mononuclear variants within a suitable cellular background and/or areas of extensive fibrosis. Whole body BM scintigraphy (BMS) was performed within 2 weeks of BMB. In all but four cases of negative biopsy and positive scintigraphy BM invasion was proved by concordant abnormalities on any of the following examinations: MRI, bone scanning, X-ray and CT.

Results: In accordance with above mentioned criteria BM invasion by HD was diagnosed in 22 of 44 evaluated cases. Ten patients had positive BM biopsy: Red-Sternberg cells were revealed in only 4 observations. BMS was abnormal in 25 cases: 9 of them were concordant with BMB, 12 – with additional examinations and 4 – remained equivocal (false-positive). Twelve of 22 patients with BM metastases were missed by BMB. It's sensitivity was equal to 45.4%.

Conclusion: Because of very low sensitivity BM biopsy can't be used as a gold standard for diagnosis of BM invasion by HD. Whole body BM visualisation is obligatory for accurate staging in this category of patients.

1349 POSTER

The expression of cell cycle regulators p27 and pRh in low grade and high grade Non-Hodgkin's lymphomas (NHL)

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Purpose: Pathologist today use advanced methodology in diagnosing NHL, but it is still complicated and spesific markers are needed to improve the classification accuracy for targetting various treatments for different subgroups. The purpose of this study was to investigate the role of cell cycle regulators p27 and pRb in grading of the lymphomas.

Methods: The samples of 104 adults with high or low grade NHL were evaluated. The cases were classified histologically according to the REAL by an experienced pathologist. The expression of cell cycle regulators p27, pRb and tumor proliferating marker Ki-67 was investigated with immunohistochemistry. Tumor samples with p27 and pRb staining were graded into four groups (from negative to high expression). Ki-67 staining was evaluated by counting a percentage of proliferating cells.

Results: All differences in expression of p27, pRb and Ki-67 compared to histological grading of lymphomas were statistically significant ($p < 0.05$). The percentage of proliferating cells increased as p27 expression was lost ($p < 0.0001$). The opposite behaviour was seen when observating pRb against Ki-67 ($p < 0.0001$). Low grade lymphomas showed marked expression of p27 and were usually negative for pRb whereas high grade malignancies were negative or showed only very low staining of p27 and high expression of pRb.

Conclusion: The expression of cell cycle regulators p27 and pRb correlates with the grade and proliferating status of the lymphomas.

1350 POSTER

Do combination of chemotherapy (CT) and radiotherapy (RT) modify the patterns of relapse and the late central nervous system toxicity (LCNST) in immunocompetent patients with primary cerebral non-hodgkin's lymphoma?

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Combination with high-dose CT directed towards the CNS followed by whole grain RT are known to improve survival but also could modify the pattern of relapse and induce neurodegeneration in pts with PCNHL. This study reports the patterns of failures and LCNST in pts prospectively treated with the same CT/RT combination at the IGR from 01/90 to 11/97: 21 HIV-negative pts, M/F: 12/9, median age 56 (16–68), PS-WHO 0–1: 14 pts, 2–3: 7 pts. PBNHL diagnosis obtained by stereotaxic: 14 pts, or surgical biopsy: 7 pts revealed large B cell (20 pts) and anaplasic NHL (1 pt). CSF was involved in 1 pt and CSF protein "0.6 g/l in pts. Lesions were unifocal (8 pts) or multifocal (13 pts). CT consisted of 2 to 3 monthly cycles (cy) with Methotrexate (MTX) (3 g/m^2 d1, 15), VM26 (100 mg/m^2 d2–3), BCNU (100 mg/m^2 d4), and methylprednisolone (60 mg/m^2 d1–5) ± GCSF along with 6 intrathecal CT of MTX and aracytine. Whole brain RT started 4 weeks after CT (40 Gy/20 f/28 d + 10–15 Gy boost on unifocal lesions). Four pts (20%) and 15 pts (67%) experienced complete response at the completion of CT and at the end of CT/RT, respectively. With a median follow-up of 22 months (mts) (1–59), 4/15 pts with CR (27%) relapsed, outside the primary site of the tumour (3 in another brain area and 1 in retroperitoneal lymph nodes). We observed 8 tumor-related deaths and 1 death due to LCNST. The 3-year survival was 63% and 12 pts were long term survivors (disease-free: 10 pts, with relapses: 2 pts). LCNST (RTOG/EORTC) started 6 mts after the end of RT in 13/15 pts (87%) (gr 1–2:10, gr 3:2, gr 4:1). In conclusion, combination