mon overrepresentations were seen at 8q (11 cases), 4q (9 cases), 7q (8 cases:), 5p (7 cases), and 1p (8 cases). The smallest regions of overlap were narrowed down to 8q23 (10 cases), 4q12–13 (8 cases), 5p13–14 (7 cases), 7q31–32 (7 cases), 8q21 (7 cases), and 4q28–31 (5 cases). This data demonstrates that a number of chromosomal regions and even two distinct loci on 4q and 8q are involved in the pathogenesis of OS. More than 40% of the OS samples displayed low to moderate amplification of the MYCC oncogene, verified by FISH. Interestingly, amplification of the MYYC oncogene had no adverse prognostic impact in the OS cases studied.

735 POSTER

EWS-FLI1 gene rearrangement and CD99 positivity identify a breast tumor as a PNET

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Rearrangements of the *EWS* gene with ETS transcription factor genes as a result of chromosomal translocation and high expression levels of $CD99^{MIC2}$ characterize the Ewing family of tumors which usually affects bone and soft tissue in children and young adults. We report on a case of a $CD99^{MIC2}$ positive small round cell tumor m the breast of a sixty year old woman in which by cytogenetic analysis a t(11;22)(q24;q12) chromosomal aberration was identified. Reverse transcriptase polymerase chain reaction (RT-PCR) followed by sequence analysis revealed expression of a chimeric transcript in which *EWS* Eggs exon 10 was fused to *FLI1* exon 6. The specific gene rearrangement of *EWS* intron 10 was confirmed on Southern blots of genomic DNA. This case further contributes to the growing list of unusual neoplasms in adults that carry genotypic and phenotypic traits of the Ewing family of tumors. After mastectomy, adjuvant chemotherapy was performed with VACA protocol consisting of vincristine, adriamycin, cyclophosphamide and acfmomycin D with G-CSF support and radiotherapy with 50 Gy was given to the thorax wall. The patient has been tumor-free for 1 year now.

736 POSTER

Radiation-induced chromosome aberrations in two cell types of healthy donors and breast cancer patients

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Purpose: In recent studies different DNA-repair deficiencies were identified in lymphocytes of certain cancer patients. Defects in DNA-dsb-repair processes can be detected by analyzing chromosome aberrations after in vitro irradiation. We compared radiation-induced aberrations in lymphocytes and fibroblasts of healthy donors and breast cancer patients.

Material and Methods: Plateau-phase skin fibroblasts and blood G0 lymphocytes obtained from healthy donors or from 5 breast cancer patients were irradiated in vitro with a test dose of 3 Gy of 200 kV X-rays. The genomic yields of dicentrics, acentrics and the partial yields of reciprocal translocations (FISH-method, #4, #7, #9) were scored in 1st and 2nd post-irradiation metaphases.

Results: With respect to reciprocal translocations we found no differences neither between the two cell types, nor between the groups of healthy donors and breast cancer patients. Dicentric chromosomes were slightly increased in fibroblasts from the cancer patient group. Acentric fragments associated with chromosome deletions were significantly increased in both cell types of the cancer patient group.

Conclusion: In agreement with the reported increased levels of chromatid breaks or micronuclei in lymphocytes of certain cancer patients we observed increased levels of deletions in five breast cancer patients. In these patients, increased levels were also measured in skin fibroblasts. These findings indicate that at least two cell types from breast cancer patients display an increased level of unrepaired DNA-dsb's.

737 POSTER

Susceptibility to breast and ovarian cancer: The role of glutathione S-transferase polymorphism

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Purpose: Polymorphism[Γ]s in many xenobiotic metabolizing enzymes occur leading to variation in the level of enzyme expression in vivo. We hypothesize that women who carry deletions (null genotype) in glutathione-s-transferase genes, GSTM1 and GSTT1, may be more susceptible to the effects of environmental carcinogens than women who carry wild type (wt) alleles.

Methods: We studied this genotypes in a total of 105 cases, 85 cases with breast cancer (BC) and 20 cases of women with ovarian cancer (OC), using a differential polymerase chain reaction to simultaneously characterize inactivating mutations responsible for the null alleles of GSTM1 and GSTT1. We also studied 123 healthy controls (HC).

Results: 43 of 85 (50.6%) of BC were GSTM1 null, frequency not significantly different than HC (58%). 24 of 83 (28.9%) of BC were GSTT1 null and not significantly different than the frequency in HC (32.7%). When stratified by age at diagnosis we found a frequency of 46.6% in women diagnosed with BC after age 40. However, in women diagnosed with breast cancer before the age of 40, a tendency for a higher frequency of GSTM1 null genotypes (8 of 10 or 80%) was found and the trend for the differences between the two age groups was significant ($p = 0.048$, Fisher exact test). No association was found for the GSTT1 null genotype. In OC cases, GSTM1 null genotypes were found in 45.0% and GSTT1 null genotypes in 50.0%. Comparison of frequency distributions did not show significant differences from the HC.

Conclusion: Our results may suggest that the alteration in the metabolic pathways of xenobiotics may be associated with an earlier onset of breast cancer. The lack of the glutathione S-transferase M1 (GSTM1 null alele) did not appear to influence susceptibility to BC or OC. Further studies are necessary to understand if there are some differences in the tumor behavior or in the response to chemotherapeutic agents.

738 POSTER

Cytogenetic characteristics of 81 cases of human thyroid tumours

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Thyroid tumors, especialy benign ones like coloido-nodular goiters and follicular adenomas have been rarely analysed genetically. The results of cytogenetic analysis 41 coloido-nodular goiters, 33 follicular adenomas and 7 cancers (2 follicular, 2 papillary and 3 anaplastic) are presented. The method of short-term in vitro tissue culture were used. The chromosomes were G-band stained, In 7 colloido-nodular goiters single clonal structural chromosomal rearrangements were found. In 13 out of 33 follicular adenomas more complex rearrangements were detected – 13 numerical or structural In benign tumor thyroid tumours characteristics chromosal aberrations were not found. All thyroid cancer displayed the presence of sturtural aberration. The number of more complex rearrangements were higher in anaplastic cancers than in follicular and papillary ones. Structural chromosomal abberations of long arms of chromosome 4 were detected in 2 anaplastic and in 1 follicular cancer.

739 POSTER

Familial neoplastic clustering in 81 gastric cancer patients

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Gastric cancer (GC) is rarely due to a genetic syndrome (FGP, HNPCC), but many studies revealed that 15% of GC patients has a positive familial history for GC.

Methods: We asked 81 consecutive italian GC pts (52 male, 29 female; mean age 57) their family history and identified the cases of cancer family syndromes (CFS): FGP; HNPCC; other unspecified. Among the relatives of pts without CFS we assessed the total number of subjects affected by cancer at any site and analized the differences of the number of neoplasms occurred in the families after stratifying the sample by age (pts < 50 vs pts