then the overall optimal chemotherapy utilisation rate for lung cancer increases to 77% (73% for NSCLC). Another controversial issue is whether chemotherapy is indicated in patients with advanced (Stages IIIB and IV) NSCLC who have performance status level of ECOG 2; chemotherapy is indicated for these patients in this model but if they do not receive chemotherapy then the overall utilisation rate falls to 63%. The optimal rate of chemotherapy utilisation for the initial management of lung cancer is 68% (63% NSCLC and 93% SCLC).

Optimal vs actual chemotherapy utilisation rates for lung cancer (First treatment)

	Chemotherapy utilisation		
	Optimal rate (%)	Actual rate (%)	
		USA 2004 (NCDB)	UK 2003 (TCR)
All lung cancer	68	41	21
NSCLC	63	36	23
SCLC	93	67	58

Conclusions: A readily adaptable benchmark model of optimal chemotherapy utilisation in lung cancer was constructed. Comparison of recent actual rates of chemotherapy utilisation with the optimal model shows that chemotherapy is under-utilised in the initial management of lung cancer.

1218 POSTER

Do offsprings of fathers with testicular malignancies have disadvantages?

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Background: The aim of the present study was to investigate whether children, whose father was treated with chemotherapy and/or irradiation, have any disadvantage (prematurity, pathological perinatal event, congenital malformation, malignancy) compared to the healthy population.
Material and Methods: Thirty families were involved in the study, where the father was treated due to testicular malignancy. A detailed history of the family was taken, physical examination, laboratory- and immunology tests were done, determination of the bone age, abdominal sonography, electrocardiography and cytogenetical investigation were performed.
Results: In these 30 families there were 52 pregnancies. Ten of them were ended by abortion or still-birth. Forty-two pregnancies resulted in delivery, there were three twin-pairs. We examined 45 children in 30 families. The male:female ratio was 1.5:1, the mean age was 5.8 years. Two newborn infants were born with less than 2500 grams. Mild perinatal events were detected in two cases (infection, transitory respiratory problem). There were no major malformations. From 45 children 3 had any minor anomalies. Two other mild malformations were detected by the abdominal ultrasound (pyelon duplex, pyelectasy). With cytogenetic examination no spontaneous chromosome fragility was detected. In six cases the fragility was increased after induction with mytomycin C, but in each case this increase was not significant. One child is treated with retinoblastoma. A 2.3 year-old boy is followed up with benign conjunctival tumor.
Conclusion: From 52 pregnancies where the conception occurred after the therapy of the father because of malignant testicular tumor, the intrauterine loss is higher than expected, but not significantly.
Among the 45 offsprings of 30 men, treated because of testicular malignancy, a higher incidence of major malformations, pathological somato-mental development, increased chromosome fragility or malignant disease did not occur, however to confirm it more families should be studied with longer follow-up.

1219 POSTER

Cancer mortality in 13 to 29 year olds in England and Wales, 1981–2005

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Cancer is the most common natural cause of death in teenagers and young adults (TYAs) in England. The aim of this study is to present an overview of the mortality in persons aged 13 to 29 years in England and Wales between 1981 and 2005.
Data on the resident population and registrations of death from neoplasms were provided by the Office for National Statistics (London). More than 20,000 cases were extracted for approximately 303 million person-years (mpy) at risk, stratified by time period (five quinquennia) and by age group (13 to 14, 15 to 19, 20 to 24, and 25 to 29 years). The variability of the rates by sex, age group and time period was assessed with chi-squared test statistics, log-linear models and, to account for non-linear temporal trends, generalized additive models under Poisson distribution assumptions.
Overall, the mortality rate was 65.6 mpy. Malignant neoplasms of the central nervous system showed the highest mortality rate (8.5), followed by myeloid and monocytic leukaemia (6.6), lymphoid leukaemia (6.4), bone tumours (5.4) and non-Hodgkin lymphoma (5.2). These groups together accounted for almost 50% of all registered deaths under study. The mortality rate for males (72.4) was 23% significantly higher than for females (58.6). Males showed significant higher mortality rates than females in almost all diagnostic groups. In general, mortality increases with age. There were significant decreases in mortality over time. Overall the annual percentage change in mortality rates between 1981 and 2005 was minus 1.86 (95% confidence interval −2.09 to −1.62).
In conclusion, mortality rates are higher in males and in older TYAs. Diagnostic groups with the highest mortality differ from those with the highest incidence. Mortality has decreased over time.

1220 POSTER

MTHFR polymorphisms and lung cancer risk in a Japanese population

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Background: Methylenetetrahydrofolate reductase (MTHFR) activity correlates with the balance of DNA precursors, which can lead to excess accumulation of deoxyuridine triphospahate in the nuclear pool leading to uracil misincorporation into DNA instead of thymine. Because a 5,10-methylenetetrahydrofolate reductase (MTHFR) polymorphisms may reduce the MTHFR activity, we hypothesized that the MTHFR polymorphisms are associated with risk of lung cancer.
Materials and Methods: The studied groups consisted of 190 patients with histologically confirmed primary lung cancer and 108 cancer-free patients. The C677T and A1298C polymorphisms were detected using PCR-RFLP technique. Unconditional logistic regression was used to compute the odds ratios (ORs) and their 95% confidence intervals (CIs), with adjustment for several covariates found to be associated with lung cancer risk. All the statistical analyses were performed with the computer program STATA Version 8.2 (STATA Corporation, College Station, TX).
Results: As for the C677T polymorphism, the genotypic frequencies for CC, CT, TT in the lung cancer cases were 31.6%, 48.0% and 17.8% and 39.0%, 47.2%, 13.9% in controls, respectively. We did not observe a departure from Hardy-Weinberg equilibrium in the control group (P = 0.94). The TT genotype was nonsignificantly higher among the lung cancer cases than among controls (OR = 2.40, 95% CI = 0.78−7.37). The significant excess risk of the TT genotype was only observed among the lung cancer patients with squamous cell carcinoma (OR = 5.80, 95% CI = 1.24−26.9). As for the A1298C polymorphism, the genotypic frequencies for AA, AC, CC in lung cancer cases were 61.6%, 34.2% and 4.2% and 63.9%, 31.5%, 4.6% in controls, respectively. The genotypic frequencies for this polymorphism in controls were also consistent with Hardy-Weinberg equilibrium (P = 0.76). The A1298C polymorphism was not associated with lung cancer risk. The two polymorphisms were in linkage disequilibrium (D' = 0.514).
Conclusions: The 677TT genotype was associated with an increased risk of lung cancer. Theoretically, a reduction in the MTHFR activity may increase lung cancer risk due to altered DNA methylation resulting from lower levels of 5-methyltetrahydrofolate. The A1298C polymorphism was not associated with lung cancer risk in our study population. The biochemical association of the A1298C polymorphism is controversial. This polymorphism may not influence the specific activity of the enzyme.

1221 POSTER

Does methadone maintenance therapy increase the risk of new cancers?

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Recent in vitro data suggest that opiates facilitate endothelial cell migration and proliferation by transactivation of the VEGF receptor, while opiate

antagonists block this effect (Cancer Res 62:4491–4498, 2002; Microvasc Res 72:3−11, 2006). Recently it was shown morphine activates breast cancer cell migration in vitro. (AACR 2007 abstract 1364). Despite their widespread chronic use in pain therapy and addiction medicine, clinical data evaluating the role of opiates and their antagonists on tumor growth or proliferation are sparse. The model of addiction treatment in Perth (Australia) provides an opportunity to assess the effects of these drugs. In Perth, standard treatment for heroin dependence is via the opiate agonist methadone maintenance (MM). However some patients have received an opiate antagonist via naltrexone implants (NI) under Australian special access guidelines.
Methods: Data were assembled using the Western Australian Data Linkage System (WADLS): cancer related admissions were identified via ICD diagnostic codes. All persons entering MM (n = 658) or NI (n = 376) for the first time in 2001–2002 were eligible. Following approval from the University of Western Australia, plus clearance to access WADLS, hospital admissions were identified for 573 MM and 361 NI cases (20 people receiving both MM and NI were then excluded). The MM group were significantly older than the NI group (31.3 years versus 28.1 years). The sex ratios were similar: NI 204 (60%) males, MM 329 (59% males), 199 (36% female), and 25 (5%) missing data.
Results: In 2439 person-years of follow-up there were 6 (1.1%) new cancer cases in the MM group [malignant neoplasm of bladder and skin, malignant leiomoma of uterus, benign neoplasm of cervix and skin, essential (haemorrhagic) thrombocythaemia], and in 1539 p-y of follow-up, 4 (1.2%) in the NI group (melanocytic naevi (×3: 1 case also with benign lipomatous neoplasm), 1 malignant neoplasm of brain. There was 1 death (probable oesphageal cancer) with no prior cancer related hospital admissions from the MM group. There were no admissions for breast or colon cancer in either group.
Conclusion: The prevalence of new tumors was similar in the two groups. This study demonstrates the feasibility of utilizing this population and technique to identify the effects of chronic opiates and antagonists on development of malignancies. Continuing follow-up of the cohorts is planned.

1222 POSTER

Prophylactic oophorectomy for the prevention of breast and ovarian cancer in high risk mutation carriers: meta-analysis

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Background: Compared to the general population, BRCA1 and BRCA2 mutation carriers have significantly increased lifetime risks of breast and ovarian cancer. Prophylactic oophorectomy may serve a dual preventative function, by decreasing serum oestrogen and hence breast cancer incidence, while eliminating at-risk ovarian epithelium. **Materials and Methods:** The existing published literature (MEDLINE, EMBASE, CENTRAL) was systematically reviewed to assess the efficacy of prophylactic oophorectomy in reducing breast and ovarian cancer incidence, as well as mortality in BRCA1/2 mutation carriers. Individual data for 4154 carriers in five prospective cohort studies, one population based case-control study and one retrospective cohort study was analyzed. Analysis of additional data from unpublished sources has also been completed. Meta-analysis was performed using fixed and random effects models to derive pooled relative risks (RR) for outcomes of risk reduction in overall mortality, breast and ovarian cancer incidence.
Results: In BRCA1/2 mutation carriers, prophylactic oophorectomy significantly decreased the risk of ovarian cancer incidence (RR 0.24; 95% CI 0.14−0.41). A reduction in breast cancer incidence was also observed (RR 0.48; 95% CI 0.30−0.75). The relative risk of overall mortality was 0.64 (95% CI 0.35−1.20). Few studies measured cancer-specific mortality outcome. There was low evidence of heterogeneity between studies. Sensitivity analysis excluding small studies did not reveal a significant difference in pooled measures of effect. Influence analysis for each outcome examined did not disclose outlier studies.
The included studies had verified outcomes and strict follow-up, thus were less subject to bias. However, confounding by indication may occur in cohort studies. Concern about cardiovascular mortality post-oophorectomy was not supported by a large multi-centre study, and the complication rate was low. Ongoing follow-up after oophorectomy is advised due to a small risk of primary peritoneal cancer and for breast surveillance.
Conclusion: Given the strong and consistent evidence for risk reduction in breast and ovarian cancer with prophylactic oophorectomy, and the lack of reliable surveillance for ovarian cancer, this method of prevention should be considered in BRCA1/2 mutation carriers. Recommendations for further research include studies comparing prophylactic oophorectomy to other prevention methods in BRCA1/2 mutation carriers.

1223 POSTER

Cancer screening in Greek diabetics. A comparative survey study

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Background: Diabetic patients seem to share the same if not higher possibility for developing various malignancies as compared to the general population. Nevertheless, data from the literature suggest that diabetics are frequently under screened. Unfortunately, these data are only referred to females and related to gynaecological tests (mammography and Pap smears), but nothing is known about screening implementation for other cancers for both genders. Our objective was to investigate the rate of screening practices among a sample of Hellenic diabetic patients as compared to non diabetic population.
Methods: 6447 Greek individuals (675 diabetics vs. 5772 non-diabetic) entered the study in the framework of PACMeR 02 cancer screening study.The screening rate for the cost-effective tests [Mammography (MRX), Pap test (PAP), Fecal Occult Blood Test (FOBT), sigmoidoscopy (SIG)] and not evidence-based exams [Clinical breast examination (CBE), breast ultrasound (USB) self breast examination (SBE) medical consultation included, PSA, digital rectal examination (DRE), transrectal ultrasound (TRUS)] was performed. Analysis was performed separately by gender.
Results: Diabetic women reported at higher rates that they never performed the sex-specific CBE, PAP, SBE (medical consultation included), SKIN tests ($p < 0.001$), MRX ($p = 0.0012$), and USB ($p = 0.0385$). Moreover non diabetics reported performing screening SBE, CBE, PAP and MRX a more frequently compared to diabetic women ($p < 0.05$). Prostate cancer screening rates were higher among diabetics individuals, but statistical differences were reached only for TRUS and DRE. Colorectal cancer screening was very low in both settings (screening rate <2%).
Conclusion: This study can serve as a reminder to primary care providers that diabetic patients and especially women seem to be underscreened and a more focused approach should be taken to include this sensitive target group in the screening activities.

1224 POSTER

Primary care physicians and evidence-based cancer screening practices in Greece

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Background: Routine integration of primary prevention into practice has been sub-optimal, resulting in lost opportunities to potentially decrease morbidity and mortality. Since major health care authorities recommend the evidence-based and cost effective screening practices we investigated the concordance of primary care providers' responses to current guidelines.
Methods: 366 primary-care physicians entered the study and answered a screening practice questionnaire. We explored the concordance of physicians' responses to recommended guidelines by analyzing questionnaires results for the optimal (guideline-based) prescription frequency of cost-effective tests: stool occult blood test (SOBT) good-practice = yearly or twice yearly, sigmoidoscopy good-practice = every 3−5 years, Pap test accepted-practice = yearly or twice yearly or every 2−3 years, mammography good-practice = every 1−2 years and clinical breast examination (CBE) good-practice = yearly or twice yearly, during targeted cancer activities.
Results: The prescription rates for cost effective tests were as follow: SOBT good-practice 36.61%, under-practice 9.56%; sigmoidoscopy good-practice 17.76%, over-practice 11.2%; Pap test accepted-practice 88.9%, under-practice 0.27%; mammography good-practice 74.32%, under-practice 10.1% and CBE good-practice 71.47%, under-practice 7.20%. SOBT, sigmoidoscopy, Pap test, mammography and CBE were considered not important at 53.83%, 71.04%, 10.93%, 15.57% and 21.33%, respectively.
Conclusions: Physicians seem well informed about mammography, CBE and Pap test application. Colorectal cancer seems to be not a favorable