classified as low RS showed better PFS than patients with tumors with high RS (88.9% vs 63.9%, P=0.0488).
Conclusions: CDK1 specific activity of tumors and the CDK2 specific activity are both associated with recurrence and prognosis. Analysis of cyclin-dependent kinase activity in the clinical setting could be a powerful approach for predicting cancer recurrence and prognosis in RCC after surgery and has potential for use as a routine laboratory test.

393 CORRELATION BETWEEN 5-AMINOLEVULINIC ACID-INDUCED FLUORESCENCE INTENSITY AND CELLULAR ATYPISM IN RENAL CELL CARCINOMA

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Introduction & Objectives: Recently, photodynamic diagnosis (PDD) after oral administration of 5- aminolevulinic acid (5-ALA) is applied for renal cell carcinoma, particularly to assess the surgical margin status in partial nephrectomy. We have also investigated the distribution of 5-ALA induced protoporphyrine IX (PPIX) in renal cell carcinoma. We found that strong fluorescent area and weak fluorescent area coexisted in the resected kidney under blue light. There is no report concerning the relationship between 5-ALA induced fluorescence intensity and cellular atypism in renal cell carcinoma. The aim of this report is to investigate whether the fluorescence intensities correlate with cellular atypism.
Materials & Methods: A total of 40 patients with a renal tumor underwent radical or partial nephrectomy. For photosensitization, 1.0g of 5-ALA was administered orally 4 hour prior to surgery. The resected kidney or the resected tumor was inspected under blue light for characteristic red fluorescence. In case that strong fluorescent area and weak fluorescent area coexisted, strong fluorescent sample and weak fluorescent sample were removed respectively. All samples were fixed with 10% formalin and embedded in paraffin. Cellular polymorphism and nuclear atypism were investigated in the fluorescent tissue.
Results: In 4 cases of radical nephrectomy, the coexistence of strong fluorescence area and weak fluorescence area was seen under blue light. All 4 cases were clear cell carcinoma. In case1, spindle cell feature was seen only in the strong fluorescent specimen. In case2, nuclear grading was G2=G1 in the strong fluorescent specimen, whereas G1>G2 in the weak fluorescent specimen. In case3, nuclear grading was G2>G1 in the strong fluorescent specimen, whereas G1>G2 in the weak fluorescent specimen. In case4, necrotic change and bleeding was remarkably seen in the strong fluorescent specimen.
Conclusions: PDD after oral administration of 5-ALA could be considered as a reliable tool to assess the surgical margin status during partial nephrectomy. 5-ALA induced fluorescence intensity correlates with cellular atypism in renal cell carcinoma. It may be helpful to predict the prognosis.

394 INTEROBSERVER VARIABILITY IN THE ASSESSMENT OF HISTOLOGIC SUBTYPE AND FUHRMAN GRADE OF RENAL TUMORS BIOPSIES: RESULTS OF A PROSPECTIVE STUDY

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Introduction & Objectives: The indications to percutaneous biopsy of renal tumors are increasing. The accuracy in the assessment of histologic subtype (HS) and Fuhrman grade (FG) on renal tumor biopsies (RTBs) is important when this information is used for clinical decision making. Aim of this study was to assess the interobserver variability in determining HS and FG on RTBs performed on the surgical specimen after radical or partial nephrectomy.
Materials & Methods: RTBs were performed on surgical specimens in 43 patients who underwent radical or partial nephrectomy for a renal tumor between March 2009 and July 2010. Median tumor size was 50 mm (IQR 32-70). In all cases 4 cores were obtained with a 18G automatic needle (2 in the central part and 2 in the peripheral part of the renal mass). All cores and surgical specimens were blindly analyzed by two expert pathologists. The concordance between the pathologists in the assessment of adequacy of the tissue to obtain a diagnosis, HS and FG was evaluated using the Cohen's kappa coefficient (CKC) either for central and peripheral RTBs. The results were also stratified based on tumor size (group A <4 cm; group B 4-7 cm; group C >7 cm). Statistical analysis was performed with SPSS v. 15.0 e R v. 2.11.0.
Results: Central and peripheral RTBs were defined by the two pathologists as adequate to obtain a diagnosis in 70-79% and 79-84% of the cases respectively. The adequacy of central biopsies increases with decreasing tumor size. CKC for the concordance on biopsy adequacy was 0.82 (very good) for central biopsies and 0.91 (very good) for peripheral biopsies. All adequate RTBs allowed the diagnosis of HS for both pathologists. CKC for the concordance on the diagnosis of HS was 0.94 (very good). The concordance between HS on RTBs and surgical specimen was perfect in all cases. The diagnosis of FG was possible on central biopsies and peripheral biopsies in 68-74% and 79-82% of cases respectively. CKC for the concordance on FG was 0.52 (moderate) for central biopsies and 0.63 (good) for peripheral biopsies. FG on RTBs and surgical specimen was concordant in 82% of cases.
Conclusions: Central RTBs appear to be less frequently adequate for histological assessment than peripheral RTBs, especially for larger renal masses. The concordance between pathologists in the assessment of HS on RTBs is very good. Determination of FG is easier and interobserver concordance on FG is higher for peripheral RTBs. Based on these results peripheral RTBs should be favoured over central RTBs for histological diagnosis of renal tumors.

395 WITHDRAWN

396 ESTABLISHMENT OF AN INTERPHASE FISH TEST FOR PREDICTION OF PROGNOSIS IN CLEAR CELL RENAL CELL CARCINOMA

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Introduction & Objectives: By precise mapping of genomic imbalances of 56 clear cell renal cell carcinomas using array-CGH in our previous studies we identified specific chromosomal aberrations which are significantly associated both with metastasis and cancer specific survival. In multivariate analysis gains of 1q21.3 and of 20q11.21-q13.2 as well as loss of 9p21.3-p24.1 were independent predictors for metastasis. Multivariate Cox-regression analysis revealed gains of 7q36.3 and of 20q11.21-q13.32 and a loss of 9p21.3-p24.1 as independent prognostic factors for outcome of patients. The aim of this study was to prove the prognostic value of these aberrations using FISH probes on these critical regions in order to develop a routine diagnostic tool.
Materials & Methods: FISH experiments were performed on isolated cell nuclei from tumor tissues. The same cohort of previous array-CGH analysis was used for these experiments (32 metastasized and 24 non-metastasized). For each critical chromosomal region (1q21.3, 7q36.3, 9p21.3-p24.1 und 20q11.21-q13.32) we hybridized a mixture of three different commercially available FISH probes: region specific probe in red dye, centromeric probe of corresponding chromosome or probe close to centromere in green dye and centromeric probe of chromosome 2 in blue colour as control. 100 nuclei were scored in each case.
Results: Loss of 9p21.3-p24.1 (Fisher's exact test; p=0.017) and gains of 1q21.3 (p=0.030), 7q36.3 (p=0.019) and 20q11.21-q13.32 (p=0.008) displayed significant correlations with metastasis occurrence. Our analysis revealed significant correlation of gains 7q36.3 (p=0.001) and 20q11.21-q13.32 (p=0.05) as well as loss of 9p21.3-p24.1 (p=0.00002) with cancer specific death. Patients with tumours harbouring these aberrations in more than 30% of cells have a poor outcome.
Conclusions: FISH results confirmed our previous findings of array-CGH and showed that these regions play an important role in cancer progression. Based on these genetic targets it seems possible to design a combined FISH assay which can be used in routine diagnostics for outcome prediction of patients with ccRCC.

397 DIABETES MELLITUS IS A RISK FACTOR FOR RECURRENCE AND MORTALITY IN PATIENTS WITH RENAL CELL CARCINOMA

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Introduction & Objectives: The incidence of renal cell carcinoma (RCC) has been increasing worldwide, mainly in western countries, in the last three decades at a rate between 2% and 4% per year. However, which factors that have influenced this increase have not been easy to determine. Diabetes mellitus (DM) increases the risk of kidney cancer in some cohort studies, but the effect of a pre-existing diabetes on prognosis in newly diagnosed RCC patients has not been reported in the literature. In the present study, we investigated the influence of diabetes on clinic-pathological features of RCC: histological type, stage, grade and tumor size and on the overall and progression-free survival in RCC patients.
Materials & Methods: From 1979 to 2000, a total of 462 patients were treated with radical nephrectomy or nephron sparing surgery for unilateral sporadic RCC. The clinical features studied were patient age, gender, ECOG performance status, symptoms at presentation and presence of diabetes mellitus. The pathological features studied included histological subtype, tumor size, TNM primary tumor classification, nuclear grade, coagulative tumor necrosis and presence of sarcomatoid differentiation. To test the association of diabetes with survival end-points, Kaplan-Meier Method and Cox multivariable logistic regression models were applied.
Results: Out of 462 patients (276 males, 186 females, mean age 59.8 years),