TUMORI DELLA VESCICA: DIAGNOSI

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ACCURACY OF [11C] CHOLINE POSITRON EMISSION TOMOG-RAPHY/COMPUTED TOMOGRAPHY IN PREOPERATIVE STAGING IN PATIENTS WITH BLADDER CANCER REFERRED TO RADICAL CISTECTOMY: COMPARISON WITH CONVENTIONAL COMPUTED TOMOGRAPHY

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Aim of the study

In the present study we evaluated the diagnostic accuracy of 11C Choline Position Emission Tomography in combination with computed tomography (PET/CT) for lifonodal (LN) staging in patients with bladder cancer (BCa) scheduled for radical cystectomy (RC) in comparison with contrast enhanced CT (CECT).

Materials and methods

From April 2011, 15 patients (mean age 70±9.8) with urothelial bladder cancer underwent RC with extended (internal, external, common iliac, presacral and obturator LN) pelvic lymph node dissection (PLND); all patients were preoperatively submitted to contrast enhanced CT and 11C Coline PET with low-dose CT for attenuation correction. At PET/CT the node positivity was defined as the presence of focal uptake in a LN region, while at CECT the size criterium (>1 cm) was considered. Histopathology of resected LN was taken as reference standard and was correlated with the results of 11C Coline PET/CT and CECT in a patient-based analysis. Sensitivity, Specificity, Positive Predictive Value (PPV), Negative Predictive Value (NPV) and accuracy of both the techniques were evaluated.

Results

Pathological examination of removed specimen showed an organ confined disease in 8 patients (1 CIS, 5 pT1, 2 pT2), while the remaining half of our population harbored a non-confined disease (6 pT3, 1 pT4.) A total of 474 LN were removed (mean 31.6±12:4), and metastases were found in 30 LN (6%) and in 3 of 15 patients (20%). According to patient based analysis, sensitivity, specificity, PPV, NPV and accuracy, calculated for [11C] choline, were 100%, 92%, 21%, 100% and 93% respectively, while, for standard CT, the values of these parameters were calculated as 33%, 91%, 8%, 84% and 80%. By applying a lymph node-based analysis, [11C] choline showed an accuracy of 98% (sens 10%, spec 99%, PPV 1%, NPV 99%), while the CT respectively had an accuracy of 93% (sens 3%, spec 99%, PPV 99%, NPV 93%). Considering the 3 N+ patients (109 LN removed, mean 36.4±21.5), according to [11C] choline imaging, 4 LN (3%) were found positive for metastatic dissemination, though 2 LN (1%) showed false positivity. As far as our population is concerned, in 11 cases (71%) [11C] choline imaging showed uptake limited to the bladder, while in 4 patients (29%) also LN uptake was detected.

Discussion

At present, CT is the most commonly used non-invasive study for the staging of bladder cancer. Our data suggest, however, that CT, despite the use of helical thin contiguous sections and intravenous contrast medium, remains limited in this respect. It appears to be clinically relevant that 11C-choline PET yielded fewer false-positive results than did CT, suggesting that 11C choline PET may be particularly useful in evaluating patients with nodal enlargement or nodes with borderline sizes.

Conclusions

Though this study is still ongoing, the preliminary data already collected show an increase in the accuracy of the preoperative staging of BCa, by performing [11C] PET/CT scan in adjunction to standard CT to patients referred for RC and PLND.

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A COMPARISON OF HEXAMINOLAEVULINATE (HEXVIX®) FLUORESCENCE CYSTOSCOPY AND WHITE LIGHT CISTOSCOPY FOR THE DETECTION OF BLADDER CANCER: RESULTS OF THE HERO OBSERVATIONAL STUDY

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Aim of the study

To evaluate the diagnostic accuracy of hexylaminolaevulinate (HAL) hydrochloride (Hexvix®) PDD cystoscopy compared with standard white light cystoscopy in an observational, open-label, comparative, controlled (within patient), multicenter study that used this diagnostic tool on a regular basis in daily practice.

Materials and methods

Between January 2010 and January 2011, 96 consecutive patients with suspected or confirmed bladder cancer were recruited for the HeRo observational, open-label, comparative, controlled (within patient) study done at 5 centers in Italy. All patients had standard white light (WLC) followed by blue light cystoscopy (BLC). The presence and the number of positive lesions/suspicious areas compared to surrounding urothelium detected using WLC and BLC were recorded. Biopsies/resection of each positive lesion/suspicious areas were always taken after the bladder was inspected under WLC and BLC.

Results

Overall, 234 suspicious lesions were detected in 96 patients; 108 (46.2%) were histologically confirmed to be bladder tumors/CIS. The sensitivity of BLC biopsies was significantly higher than for WLC technique.

Discussion

We acknowledge several strengths but also some limitations to the present study. First, this study was multicentric and prospective, moreover to date no study has presented the results of PDD cystoscopy compared to WLC used in daily practice. However, a randomized scheme between BLC and WLC was not adopted and BLC was always performed after WLC. Another potential bias of the study is related to the lack of a random biopsy protocol associated with the targeted biopsies of suspicious areas/bladder tumors.

Conclusions

HAL hydrochloride PDD cystoscopy used on a regular basis in daily practice enhances the diagnostic accuracy of standard cystoscopy with an elevate negative predictive value for BLC compared to WLC permitting an improvement in patient prognosis.

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Aim of the study

Fluorescence cystoscopy (FC) as an adjunct to standard cystoscopy (SC) may improve the diagnosis of bladder lesions, such as carcinoma in situ (Cis). However, it is not understood what is the failure rate of FC. The present study was designed to prospectively assess FC's accuracy and negative predictive value (NPV) in a cohort of patients (pts) undergoing cystectomy.

Materials and methods

Starting June 2009 until July 2011, 78 pts underwent radical cystectomy at our Dept. Exclusion criteria: incomplete staging TUR prior cystectomy, extensive disease (>1/3 of the bladdder), non compliance to BLC. Finally, 43 pts were administered 50 mL solution of hexaminolevulinate (Hexvix®) 1 hour prior cystoscopy. If present, suspicious lesions at SC and/or fluorescent lesions away from primitive TUR area were biopsied. Following cystectomy, all apparently normal mucosa away from areas of prior biopsy or TUR was extensively searched for residual disease and the accuracy of SC and FC defined. All analyses were performed with software Epi Info 3.3.

Results

Overall, a residual disease (Cis or G3 or severe dysplasia) was found in 21/43 cases (48.8%). Cis was found in 17 (39.5%). SC and FC detected residual disease in 8 (18.6%) and in 17 cases (39.5%); Cis was found in 5 (11.6%) and in 15 pts (34.8%), respectively. The accuracies for SC and FC were 25% and 75%, respectively; the NPV were 32% and 93%.

Discussion

Extensive search for residual disease in pts undergoing radical cystectomy will result in high rates of Cis (39.5%).

Conclusions

FS is very accurate compared to SC in diagnosing residual disease; nonetheless, a minority of cases may be missed.

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THE ACCURACY OF FLUORESCENCE CYSTOSCOPY IN A COHORT OF PATIENTS UNDERGOING RADICAL CYSTECTOMY

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THE ROLE OF ANTIPLATELET AND ANTICOAGULANT THERAPY IN THE DIAGNOSIS OF BLADDER CANCER