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POSTER

Low value of 2-fluoro-2-deoxy-D-glucose positron emission tomography in primary staging of early-stage cervical cancer prior to radical hysterectomy

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Purpose: The role of positron emission tomography (PET) with [¹⁸F] fluoro-2-deoxy-D-glucose (FDG) in early-stage cervical cancer is unclear. We aimed to investigate the clinical benefit of FDG-PET in primary staging prior to radical hysterectomy and pelvic lymphadenectomy (RH-PLND).

Patients and Methods: Patients with untreated non-bulky (≤ 4 cm) stage IA2-IIA cervical cancer and magnetic resonance imaging (MRI) defined negative for nodal metastasis were enrolled into a prospective study with 2-stage design. All patients had a preoperative dual-phase FDG-PET and ^{99m}Tc-lymphoscintigraphy as well as intra-operative sentinel lymph node (LN) detection at RH-PLND. Gold standard of LN metastasis is histological. A sample size of 120 patients was calculated to fit study aims (diagnostic efficacy of PET and sentinel LN sampling). An interim analysis was performed when 60 patients were accrued, which led to the current report.

Results: There were 36 squamous carcinomas, 21 adenocarcinomas, and 3 adenosquamous carcinomas. There were 16.7% (10/60) pelvic LN metastases and 1.67% (1/60) para-aortic (PA) LN metastasis histologically. FDG-PET demonstrated the PALN metastasis (1/1) but failed to detect any tumor deposits (0/10) in the pelvic LN. The PET false-negative pelvic LN micrometastases measured <1 to 3.0 mm (median 6.8, range 3–9 (in diameter, whereas metastatic focus of 6 mm in the PALN could be identified by FDG-PET. The second stage of this trial will be continued without PET scan.

Conclusion: This study shows that dual-phase FDG-PET has little value in primary non-bulky stage IA2-IIA and MRI defined LN-negative cervical cancer.

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Usefulness of enhanced color doppler ultra-sonography before resection of hepatic metastases

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Purpose: To evaluate the usefulness of Enhanced Color Doppler Sonography (ECD) before resection of hepatic metastases.

Materials and methods: This prospective study included 57 patients. All patients underwent conventional ultrasonography (CUS) followed by injection of contrast agent (Sonovue, Bracco) combined with the use of a perfusion software (VRI: Vascular Recognition Imaging, Toshiba). Surgical observations and histopathological examinations were considered as the gold standard to compare the diagnostic value of CUS and ECD for hepatic tumors.

Results: 41 patients underwent hepatic surgery while 16 did not because of the number and/or location of lesions. 127 surgically-proven lesions were taken into account for comparisons between the two techniques. Histopathological examination showed 110 malignant and 17 benign tumors. ECD improved hepatic tumor detection (sensitivity: 70% versus 58%, accuracy: 70% versus 60%; $p < 0.005$). 30% were not detected either by CUS or ECD (79% were <1 cm, mostly in patients with >5 lesions). Among the tumors detected with ultrasonography, 73% were detected with both techniques, 17% were detected only with ECD, 9% only with CUS. In this last group all tumors were benign at histological examination. Finally, ECD improved the detection and/or the assessment of the nature of the hepatic lesions in 26% of cases.

Conclusion: ECD improves the sensitivity of CUS for detection of hepatic metastases. It also helps to assess the nature of the lesions (benign or metastatic). ECD should be used in routine practice before hepatic surgery and could guide the surgical strategy.

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Early change of F-18 FDG uptake after chemotherapy in aggressive Hodgkin's lymphoma and non-Hodgkin's lymphoma: the different pattern of F-18 FDG uptake between aggressive Hodgkin's lymphoma and non-Hodgkin's lymphoma

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Purpose: This study was designed to compare the early change of F-18 FDG uptake between Hodgkin's lymphoma (HL) and non-Hodgkin's lymphoma (NHL).

Method: Fifty-one patients with a newly diagnosed and histologically proven aggressive NHL (n=41) and HL (n=10) were prospectively enrolled. Inclusion criteria were as follows: adult younger than 75 years; diagnosis of aggressive NHL or HL as determined by a histological and immunochemical review; measurable lesion; ECOG performance status of 0–2 and presence; Exclusion criteria were the following: meningeal involvement or primary CNS lymphoma; positive serology for human immunodeficiency virus; concomitant or previous cancer; congestive heart failure; hepatic or renal insufficiency. The protocol was approved by our Institutional Review Board and all patients gave informed written consent. F-18 FDG PET was performed before to chemotherapy (baseline) and then was repeated at day 5, the end of the first cycle(D5) and at the end of 4 cycles (after 4 cycle). Maximal standard uptake values (max SUV) of highest region of interest (ROI) at baseline (baseline SUV), D5 (D5 SUV) and after 4 cycle (after 4 cycle SUV). Reduction index was calculated. (RI early (%) = baseline SUV – D5 SUV / baseline SUV \times 100, RI late (%) = R5 SUV – after 4 cycle SUV / R5 SUV \times 100).

Result: The mean (SD) of RI_{early} and RI_{late} for 41 NHL patients were 95.6 (3.96) and 4.4(1.78) respectively. The mean (SD) of RI_{early} and RI_{late} for 10 HL patients were 21.9(6.47) and 78.1(4.69) respectively.

Conclusion: Compared to NHL patients, HL patients were shown persistently higher uptake of F-18 FDG immediately after first cycle of chemotherapy. This result suggested that higher FDG uptake of HL might be related to activated macrophage, not tumor cell.

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POSTER

Interest of Doppler-ultrasonography with perfusion software and contrast injection to early evaluation and detection of secondary resistance of gastrointestinal stromal tumors treated with imatinib

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Objective: To evaluate Doppler-Ultrasonography with perfusion software (Vascular Recognition Imaging, Aplio, Toshiba) and contrast agent injection (DUSVRI) as a predictor of tumor response to STI 571 (Glivec® – Novartis) in c-kit-positive gastrointestinal stromal tumours (GIST).

Materials and methods: Patients with GIST were prospectively included in a monocentric imaging trial. DUSVRI was performed with an Aplio sonograph (Toshiba) before STI 571 (day-1) and on D+1, D+7, D+14, D+60, D+90, 6 months, 9 months and after all 3 months. The percentage of contrast uptake (Sonovue® – Bracco) in each tumor was evaluated by two radiologists and were compared to CT scans at 2 months, 6 months, one year and after all 3 months.

Results: To date, 37 patients with 70 lesions were included and a total of 324 examinations were performed: 37 (D-1), 37 (D+1), 36 (D+7), 35 (D+14), 33 (D+60), 30 (D+90), 34 (6 months), 20 (9 months), 23 (12 months), 14 (15 months), 12 (18 months), 9 (21 months), 3 (24 months) and 1 (27 months). The results showed for the early evaluation a significantly decreases of vascularization at D+1, D+7, D+14 ($p < 10^{-4}$) for the good responder patients. In 3 cases, DUSVRI predicted the appearance of secondary resistance to therapy before CT scan.

Conclusion: DUSVRI is a new cost-effective and simple non invasive imaging technique allowing the early prediction of tumor response in c-kit-positive GIST treated with STI 571 and to detect the appearance of secondary resistance.