## Editorial, PET/CT.

### Does FDG PETCT Scan has Role in Urinary Bladder Urothelial Carcinoma.

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### **ABSTRACT:**

Bladder Cancer is a widespread common disease in EGYPT, that is ranked as the 10th most commonly, diagnosed form of cancer globally. In standard clinical practice, preoperative staging of muscleinvasive urinary bladder cancer, performing computed tomography (CT) scan of the chest, abdomen, and pelvis as a part of pre-operative assessment. Also, pelvic MRI can also be done. FDG-PET scan in comparison to computed tomography (CT) scan in patients with urothelial carcinoma may help in improving staging and hence better prognosticate and change of therapy. FDG PET/CT could detect extra-pelvic metastatic lesions with higher sensitivity as compared to CT. FDG-PET/CT can help to determine the response of primary tumor bladder Cancer in patients with muscle-invasive bladder cancer and thus can more accurately predict prognosis. F-FDG PET/CT using SUVmax of LNs is a useful tool for preoperative evaluation of pelvic LN metastases from invasive bladder cancer and may contributes for the selection of patients treatment management. PET/CT had higher sensitivity and specificity in identifying complete pathologic response and detection of chemo-sensitive tumors. Also FDG-PET/CT can help determine the response of primary tumor to NAC in patients with muscle-invasive bladder cancer and thus can more accurately predict prognosis.

**Conclusion:** PET/CT may help in improving staging and detection of extra-pelvic metastatic lesions with higher sensitivity as compared to CT also may help in evaluation of pelvic LN metastases from invasive bladder cancer.

Keywords: bladder Cancer, PET/CT, CT

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# Egyptian J. Nucl. Med., Vol. 30, No. 1, June 2025 INTRODUTION:

Bladder Cancer is a widespread disease that is ranked as the 10th most commonly diagnosed form of cancer globally. It has a notable effect on the wellbeing and longevity of individuals affected, in particular in situations where the cancer has progressed into a muscle invasive disease. In standard clinical practice, preoperative staging of muscle-invasive urinary bladder cancer (MIBC), performing computed tomography (CT) scan of the chest, abdomen, and pelvis is typically performed

#### **DISCUTION:**

Al-Zubaidi et al. investigated the clinical value of FDG-PET scan in comparison to computed tomography (CT) scan in patients with urothelial carcinoma or bladder cancer (staged  $\geq$ T1), aiming at improving staging and hence better prognosticate and change of therapy, in a retrospective study included 75 patients whom are diagnosed with invasive bladder cancer in the period between 2015 and 2020 and concluded that sensitivity of CT versus FDG PETCT were higher in FDG PETCT scan as

as a part of pre operative assessment. Pelvic MRI can also be done, although it's not routinely performed. Though, despite their high rate of accuracy in detecting primary bladder disease, both CT and MRI have not proven to have high sensitivity for nodal staging. With a sensitivity of 50–85% for the detection of pelvic LN involvement, both CT and MRI under stage about 1/3 of patients. CT and MRI still providing useful information for guiding treatment decisions <sup>(1)</sup>.

follows were 46.6% (95% CI: 21%–70%) versus 60% (95% CI: 32%–84%), While specificity was 100% (95% CI: 91%–100%) versus 83.78% (95% CI: 69%–94%), however 7/75 (9.3%) patients avoided cystectomy due to 18F-FDG-PET features of metastases that were not detected by CT <sup>(2)</sup>. **Goodfellow et al.** reported, in a study with 233 patients with MIBC or high-risk non-MIBC, that FDG PET/CT could detect extra-pelvic metastatic lesions with a sensitivity of 54% compared to 41%

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using CT. FDG PET/CT and CT showed similar specificities of 97% and 98%, respectively. The addition of a PET scan can improve the detection of distant metastases comparing CT alone <sup>(3)</sup>. Girard et al. concluded that 18F-FDG PET/CT correctly detect LNs involvement in an additional 8% of patients compared to CT alone and that 18F-FDG PET/CT accuracy is 82% compared to 74% of CT alone <sup>(4)</sup>. Soubra et al. aimed in their study to assess the accuracy of 18F-fluorodeoxyglucose with positron emission tomography and computed tomography (FDG-PET/CT) scans in measuring the response to neoadjuvant chemotherapy (NAC) in patients with muscle invasive bladder cancer. FDG-PET/CT had 78.5% sensitivity (95.6% specificity) in identifying complete pathologic response and 83% sensitivity (94% specificity) for the detection of chemo-sensitive tumors and concluded that FDG-PET/CT can help determine the response of primary tumor to NAC in patients with muscle-invasive bladder cancer and thus can more accurately predict

prognosis <sup>(5)</sup>. Drieskens et al. concluded in a prospective study that included 55 patients with nonmetastatic muscle invasive bladder cancer that addition of metabolism-based information provided by FDG-PET to CT in the preoperative staging of invasive bladder carcinoma yields a high diagnostic and prognostic accuracy <sup>(6)</sup>. Few published studies have evaluated the diagnostic performance of 18F-FDG PET/CT in detecting relapse of BC after systemic chemotherapy and/or RC; Alongi et al. reported that metabolic PETCT parameters such as SUVmax>6 and TLG>8.5 of recurrent bladder tumors are the most significant predictors of 2-year progression-free survival <sup>(7)</sup>. Vind-Kezunovic et al. studied in a retrospective study between 2012-2014, including 131 patients that F-FDG PET/CT using SUVmax of LNs is a useful tool for preoperative evaluation of pelvic LN metastases from invasive bladder cancer and contributes to the selection of patients for personalized treatment <sup>(8)</sup>.

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#### **CONCULIONS**:

PET/CT may be a useful tool for preoperative evaluation of primary bladder cancer and is a useful tool in preoperative evaluation of pelvic LN metastases from invasive bladder cancer contributes to the selection of patients for patients management.

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