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A PROSPECTIVE TRIAL FOR THE EVALUATION OF ESOPHAGEAL CANCER PATIENTS: FLUORODEOXYGLUCOSE (FDG) POSITRON EMISSION TOMOGRAPHY (PET)/COMPUTED TOMOGRAPHY (CT) VS. CONTRAST ENHANCEMENT (C.E.)CT VS. FDG PET/C.E.CT

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BACKGROUND-AIM

The present study was conceived on a population of esophageal cancer patients (ECP) who have been undergoing FDG PET/CT and c.e.CT in a single session, both at initial staging and after more than 4 weeks from the end of neoadjuvant treatment. The prospective trial was approved by our institutional Ethical Committee. Herein, we reported the preliminary data about the comparison of diagnostic performance among PET/CT, c.e.CT and PET/c.e.CT.

METHODS

The multidisciplinary team of our Institute started the recruitment from January 2012. To date, 89 ECP (70 male, 19 female, 62±12years) were recruited, with adenocarcinoma or squamous cell carcinoma who underwent basal PET/CT plus c.e.CT in a single session. The glycemic recorded value was not higher than 170mg/dL and insulin-dependent diabetic patients were excluded from recruitment, according to RECIST guideline. After 60min from the injection of 3MBq/Kg of FDG, a whole body PET/CT scan was acquired. At the end of standard acquisition, a neck-thorax-abdomen c.e.CT was performed; in particular three c.e. phases for the liver evaluation were made. Three specialized physicians (two radiologists and two nuclear medicine specialists) read the images, separately. The diagnostic performances of PET/CT, PET/c.e.CT and c.e.CT were evaluated by using the standard method and then compared with clinical staging (by patient-based analysis).

RESULTS

89 patients performed both PET/CT and c.e.CT while 86 of them had all three scans. The imaging co-registration (PET and c.e.CT) was good in 84% of patients, discrete in 12% and scarce in only 4%. The agreement among the three scans was ranged between 40% and 53% of subjects. In discordant patients, c.e.CT demonstrated more lymph node metastases than both PET/CT and PET/c.e.CT (in 22.5% and 16.9% of subjects, respectively). Conversely, PET/c.e.CT showed less loco-regional/distant lymph nodes and distant metastases than PET/CT and c.e.CT alone, thus reducing the rate of false-positive and false-negative findings (rate of distant metastases: 39% for c.e.CT, 24.7% for PET/CT and 22.5% for PET/c.e.CT). The clinical staging was recovered in 40 (45%) patients. The sensitivity of PET/c.e.CT was higher than PET/CT alone and similar to c.e.CT for the identification of metastases (63% vs. 48% and 64%, respectively).

CONCLUSION

In ECP, at initial staging FDG PET/c.e.CT represents an accurate and feasible method for recognizing a major number of pathological findings in comparison with PET/CT and c.e.CT, separately performed.