The role of choline positron emission tomography/computed tomography in the management of patients with prostate-specific antigen progression after radical treatment of prostate cancer.

Abstract:

Choline positron emission tomography (PET)/computed tomography (CT) is a currently used diagnostic tool in restaging prostate cancer (PCa) patients with increasing prostate-specific antigen (PSA) after either radical prostatectomy (RP) or external-beam radiation therapy (EBRT). However, no final recommendations have been made on the use of this modality for patient management. To critically analyse the current evidence for the use of choline PET/CT scanning in the management of patients with a progressive increase in PSA after radical treatment for PCa, evaluating its diagnostic accuracy in the detection of recurrences, the clinical predictors of positive PET/CT examinations, and the modalities’ role as a guide for tailored therapeutic strategies. Data on recently published (2003-2010) original articles, review articles, and editorials concerning the role of choline PET/CT in this scenario were analysed. The diagnostic accuracy of choline PET in detecting sites of PCa relapse has been investigated by several authors, and the overall reported sensitivity ranges between 38% and 98%. It has been demonstrated that choline PET technology’s positive detection rate improves with increasing PSA values. The routine use of choline PET/CT cannot be recommended for PSA.
values < 1 ng/ml. However, in addition to PSA serum value, PSA doubling time (PSA DT), and other clinical and pathologic features-including locally advanced tumour (pT3b-T4) or lymph node involvement at initial staging-should be considered to refer patients to choline PET/CT study. Choline PET/CT may be also proposed as an image guide either for experimental surgical or radiation therapy treatments. According to the current available data, choline PET/CT plays a role in the management of biochemical relapse. Its accuracy is correlated to PSA value, PSA DT, and other pathologic features. Choline PET/CT may be proposed as a guide for individualised treatment of recurrence.