Role of 18 F-FDG PET/CT in the detection of ovarian cancer recurrence in the setting of normal tumor markers

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Abstract:

Purpose: To evaluate the diagnostic performance of 18F-fluorodeoxyglucose positron emission tomography/contrast enhanced computed tomography (18F-FDG PET/CT) in patients with clinically/radiologically suspected ovarian tumor recurrence and normal tumor markers. Materials and methods: A total of 54 18F-FDG PET/CT studies from 41 patients with suspected ovarian tumor recurrence and normal tumor markers were evaluated. Each patient underwent PET/CT with CE-CT scans in the same study. Studies were read independently by one experienced nuclear medicine physician and one experienced radiologist. A four-point score (score 0=definitely benign, score 1=probably benign, score 2=probably malignant and score 3 = definitely malignant) used to assess the presence or absence of recurrence (local, regional or distant). The final diagnosis of tumor status was made on the basis of subsequent follow-up by conventional imaging (CT/MRI), 18F-18F-FDG PET/CT or histopathology whenever possible. Results: Of the 54 studies evaluated, 26 (48%) studies had tumor recurrence and 28 (52%) studies were disease-free based on final diagnosis. Combined 18F-FDG PET/CT vs. CE-CT alone showed sensitivity, specificity and accuracy of 92% vs. 73%, 90% vs. 55%, and 91% vs. 63%, respectively. 18F-18F-FDG PET/CT was significantly more sensitive, more specific and more accurate compared to CE-CT with P-values of 0.06, 0.006 and 0.0001, respectively. Site-based analyses were also performed and showed significantly higher diagnostic indices for combined FDG-PET/CT. Conclusion: Combined 18F-FDG PET/CT with contrast enhancement is more accurate than CE-CT alone in the diagnosis of ovarian tumor recurrence in patients with normal tumor markers.

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