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F₁₈-FDG PET/CT in the Evaluation of Adrenal Masses

Our purpose was to evaluate the performance of F₁₈-FDG PET/CT, using data from both the PET and the unenhanced CT portions of the study, in characterizing adrenal masses in oncology patients. Methods: One hundred seventy-five adrenal masses in 150 patients referred for F₁₈-FDG PET/CT were assessed. Final diagnosis was based on histology (n = 56), imaging follow-up (n = 118) of 6–29 mo (mean, 14 mo), or morphologic imaging criteria (n = 51). Each adrenal mass was characterized by its size; its attenuation on CT, expressed by Hounsfield units (HU); and the intensity of 18F-FDG uptake, expressed as standardized uptake value (SUV). Receiver operating characteristic curves were drawn to determine the optimal cutoff values of HU and SUV that would best discriminate between benign and malignant masses. Results: When malignant lesions were compared with adenomas, PET data alone using an SUV cutoff of 3.1 yielded a sensitivity, specificity, positive predictive value, and negative predictive value of 98.5%, 92%, 89.3%, 98.9%, respectively.

For combined PET/CT data, the sensitivity, specificity, positive predictive value, and negative predictive value were 100%, 98%, 97%, 100%, respectively. Specificity was significantly higher for PET/CT (P < 0.01). Fifty-one of the 175 masses were 1.5 cm or less in diameter. When a cutoff SUV of 3.1 was used for this group, 18F-FDG PET/CT correctly classified all lesions.

Conclusion: 18F-FDG PET/CT improves the performance of 18F-FDG PET alone in discriminating benign from malignant adrenal lesions in oncology patients.



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