

The detection rates and tumor clinical/pathological stages of whole-body FDG-PET cancer screening

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Objective: FDG-PET has been used for cancer screening, mainly in East-Asia, and cancers are found not infrequently. However, their stages have not been clarified. We examined the detection rates of various cancers using whole-body PET for the screening of cancers in asymptomatic individuals, focusing on their clinical and pathological stages. **Methods:** Whole-body PET was obtained as a part of our cancer screening program among 3,426 healthy subjects. All subjects participated in a course of PET examination in conjunction with conventional examinations including a medical questionnaire, tumor markers, immunological fecal occult blood test, neck and abdominal ultrasonography and whole body computed tomography. A diagnosis and staging was obtained by an analysis of the pathological findings or by an analysis of the clinical follow-up data. **Results:** Malignant tumors were discovered in 65 lesions found in 3,426 participants (1.90%). The PET findings were true-positive in 46 of the 65 cancer cases. The cancers were found in the following organs: the colon 14; thyroid gland 10; stomach 7; lung 5; liver 3; breast 2; and one each in the kidney, gallbladder, esophagus, pancreas and retroperitoneum. The stages were as follows: stage 0 5, stage I 17, stage II 10, stage III 7, and stage IV 6. One was an unknown primary. There were 19 false-negative findings (0.6%) on PET. Six cancers (0.18%) were missed in our screening program. **Conclusions:** PET imaging has the potential to detect a wide variety of cancers at potentially curative stages. Most PET-negative cancers are early stage cancers, and thus can be detected using other conventional examinations such as endoscopy.

Key words: FDG-PET, cancer screening, detection rate, stage