

CORRELATION OF SUV_{max} AND ANEMIA STATUS ON 18F-FDG PET-CT SCAN IN ONCOLOGICAL PATIENTS

Yusuf Ziya TAN (Onsekiz Mart University Faculty of Medicine Department of Nuclear Medicine and Department of Oncology)
Semra ÖZDEMİR (Onsekiz Mart University Faculty of Medicine Department of Nuclear Medicine and Department of Oncology)
Lokman KORAL (Onsekiz Mart University Faculty of Medicine Department of Nuclear Medicine and Department of Oncology)

Introduction - Purpose : Fluorodeoxyglucose positron emission tomography (FDG-PET) has been widely used in clinical practice. Positron emission tomography-computerized tomography is a functional imaging modality based on glucose metabolism on oncological patients. An observational finding found a large variation FDG uptake in patients with anemia status undergoing PET/CT. The purpose of this study was to determine correlation between anemia and SUV max in FDG PET-CT imaging.

Methods - Tools : There were 111 patients, (74 male, 37 female), average age 62.59 (range 28-84), undergoing FDG PET-CT scans were selected and analyzed. The biochemical values within 30 days prior to the scan were noted. Maximum SUVs of brain, tumor and tumor volume were quantified. Patients were classified as anemic (hgb \leq 11.7) or nonanemic (hgb $>$ 11.7) based on most recent value within 30 days prior to the scan.

Findings : All patients were fasted for at least 4–6 h, and normal blood glucose levels were verified on blood samples collected before intravenous administration of FDG at a rate of 3.3 MBq/kg. PET/CT images were obtained from the skull to the mid-thigh 60 min after completion of injection. PET/CT imaging was conducted by using the biograph system, which was consisted of a PET scanner (Siemens, DUO- Germany). Maximum SUVs of the tumor, vertebral body, central brain (cerebrum and cerebellum) as well as mean SUV max of normal liver were quantified (Fig1).

Discussion : Results: Central brain SUV max as expected correlated significantly negative with age ($p < 0.001$, Fig2 A,B,C). There was significant negative correlation between hemoglobin level and and tumor SUV max ($p < 0.001$) and positive correlation between hemoglobin level and and tumor volume ($p < 0.001$).

Keywords: PET-CT, Anemia

Figure 1

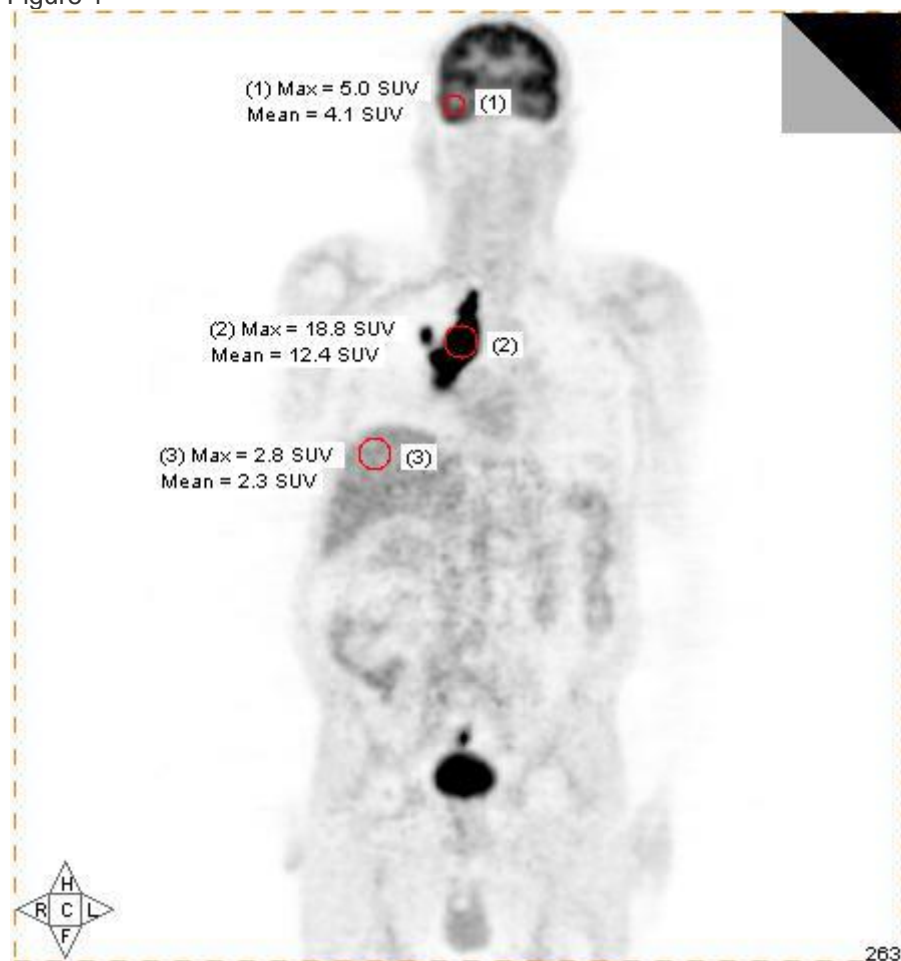


Figure 2A

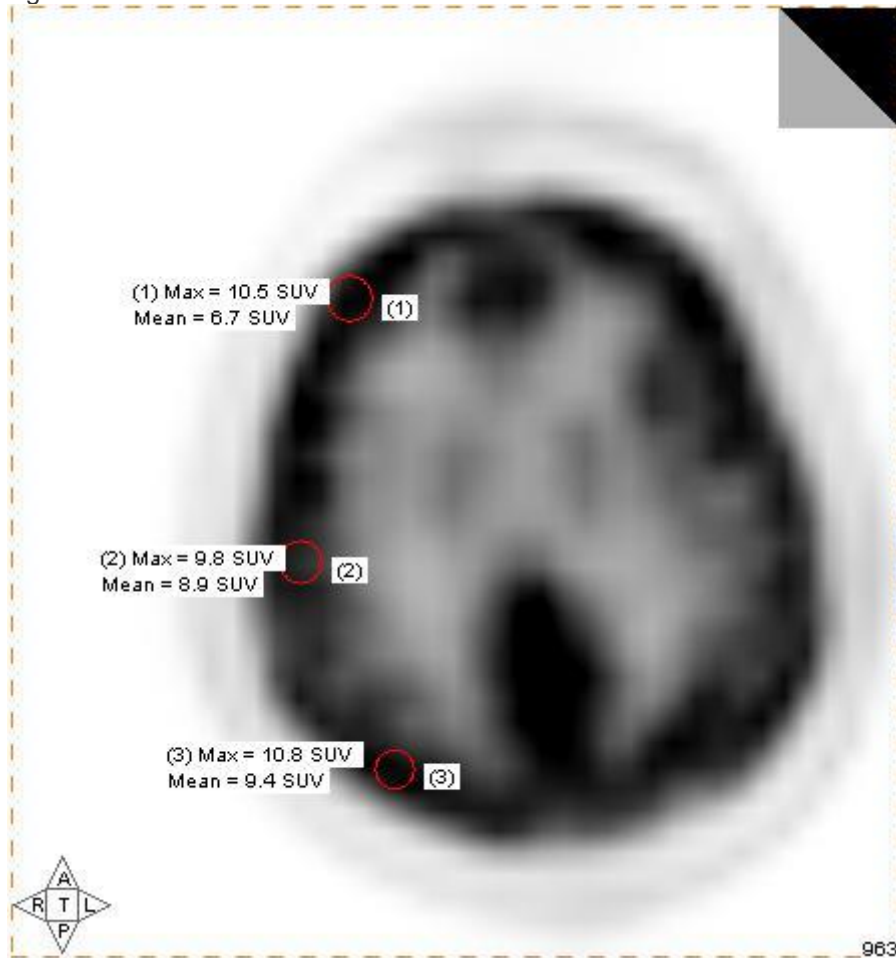


Fig2. Whole-body FDG-PET axial image (A: PET, B: CT, C: Fusion) of a 65-year-old man with colon carcinoma before treatment, showing FDG uptake in the central brain. Blood cell counts 5 days after the PET study were as follows: WBC: 9.65, Hgb:9.3, RBC:3.46, Platelet: 36.6. Central brain SUV max correlated significantly negative with age ($p < 0.001$),

Figure 2B

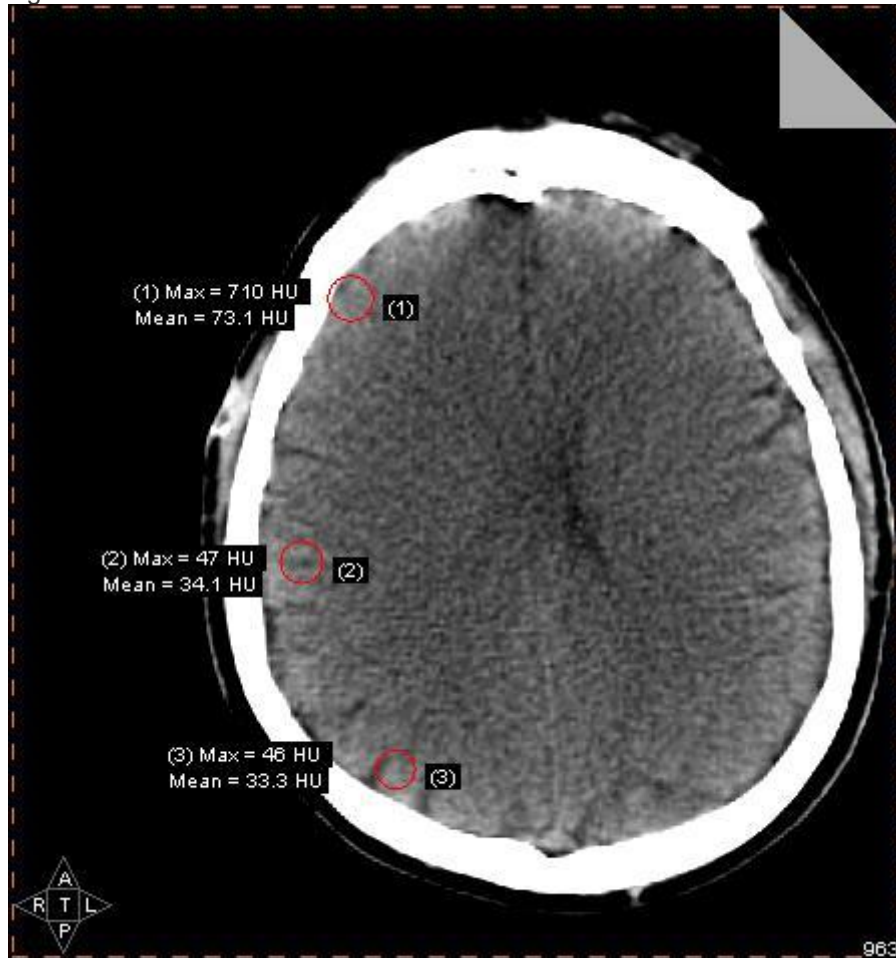


Fig2. Whole-body FDG-PET axial image (A: PET, B: CT, C: Fusion) of a 65-year-old man with colon carcinoma before treatment, showing FDG uptake in the central brain. Blood cell counts 5 days after the PET study were as follows: WBC: 9.65, Hgb:9.3, RBC:3.46, Platelet: 36.6. Central brain SUV max correlated significantly negative with age ($p < 0.001$),

Figure 2C

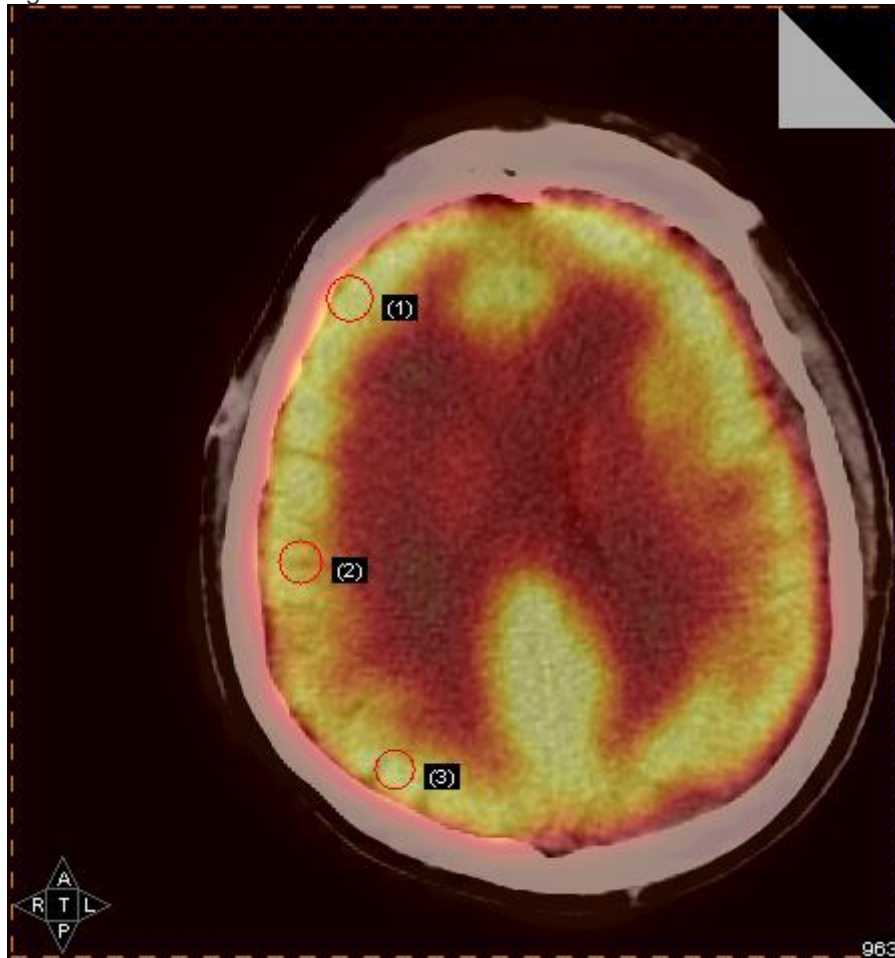


Fig2. Whole-body FDG-PET axial image (A: PET, B: CT, C: Fusion) of a 65-year-old man with colon carcinoma before treatment, showing FDG uptake in the central brain. Blood cell counts 5 days after the PET study were as follows: WBC: 9.65, Hgb:9.3, RBC:3.46, Platelet: 36.6. Central brain SUV max correlated significantly negative with age ($p < 0.001$),