

^{18}F FDG uptake in the Large Arteries; A New Observation

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The cellular components of atherosclerotic plaques, such as macrophages, have high glucose metabolic activity. The frequency of vascular uptake of FDG as demonstrated by positron emission tomographic (PET) scans was determined in 132 consecutive patients who underwent whole body PET scans to assess cancer activity and 5 patients who had only lower extremity scans for other purposes. Vascular FDG uptake was assessed in major vessels in the abdominal aorta, iliac, and proximal femoral arteries on the 132 whole-body scans whereas only the femoral and the popliteal arteries were examined on the leg scans. The patients' ages ranged from 20 to 80 years, and were divided into three age groups: 35 patients were below 40 years (group 1; mean age, 32.4 years), 48 patients were 41 to 50 years (group 2; mean age, 50.3 years), and 54 patients were about

60 years (group 3; mean age, 70.3 years). Fifty percent (69 of 137) of the entire population showed vascular FDG uptake in at least one vessel. Thirty-four percent (12 of 35) of group 1, 50% (234 of 48) of group 2, and 61% (33 of 54) of group 3 revealed vascular wall uptake ($P=0.017$ between groups 1 and 3). In addition, the correlation between the mean age of the groups and the prevalence of FDG vascular uptake was strong ($r=0.99$). FDG uptake was present in 50% of the patients who were examined which increased with advancing age. This vascular uptake might be related to high smooth muscle metabolism in the media, subendothelial smooth muscle proliferation from senescence, and the presence of macrophages within the atherosclerotic plaque. The relative contribution of these sources needs further investigation.