The Uptake of ^{18}F-FDG by Renal Allograft in Kidney Transplant Recipients is not Influenced by Renal Function

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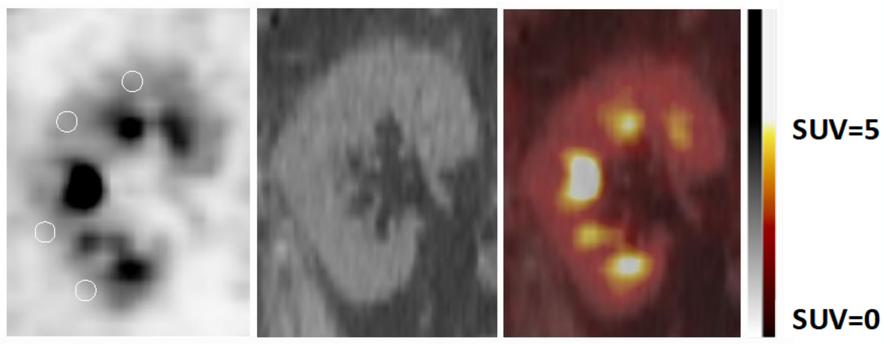
Introduction

^{18}F-Fluorodeoxyglucose (^{18}F-FDG) positron-emission tomography coupled with computed tomography (PET/CT) imaging has been recently proposed as a non-invasive tool for the diagnosis of renal allograft acute rejection (AR) in kidney transplant recipients (KTR). Still, the influence of kidney function on the uptake of ^{18}F-FDG by the renal graft remains unknown.

Patients and Techniques

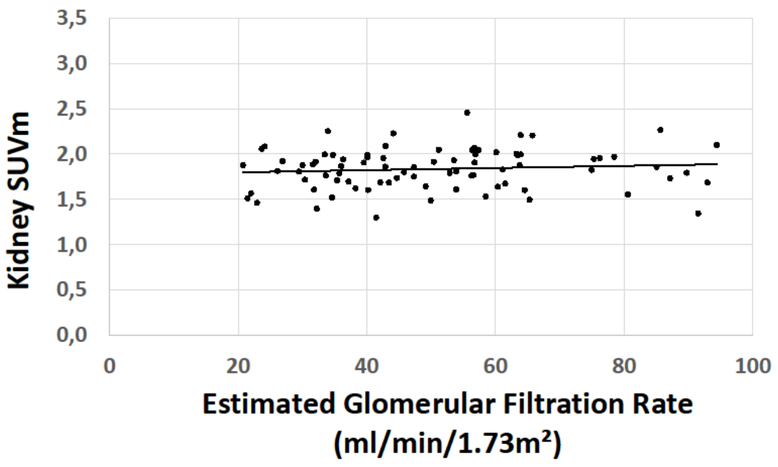
- 82 KTR retrospectively identified with a male to female ratio at 1.4
- Age : 58 ± 13 years
- Mean eGFR: 50 ± 19 ml/min/1.73m² [21; 94]
- Documented pyelonephritis or AR, as well as patients under chronic hemodialysis, were excluded
- PET/CT performed within 67 ± 15 min following injection of 3.7 ± 0.6 MBq/kg of ^{18}F-FDG
- Mean glycaemia at injection : 113 ± 34 mg/dl

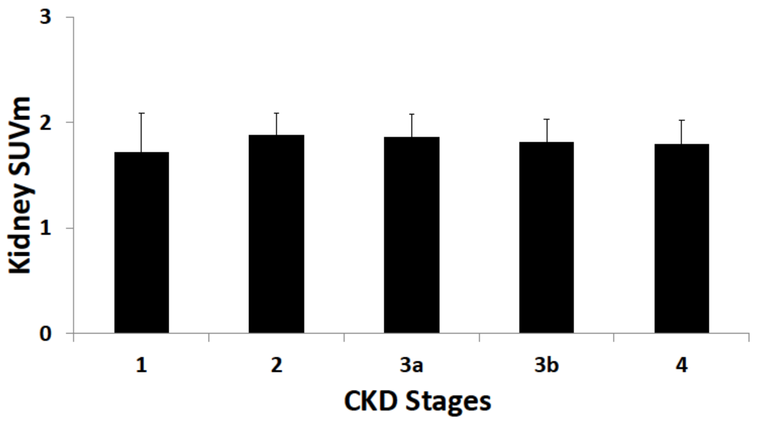
SUV measurement

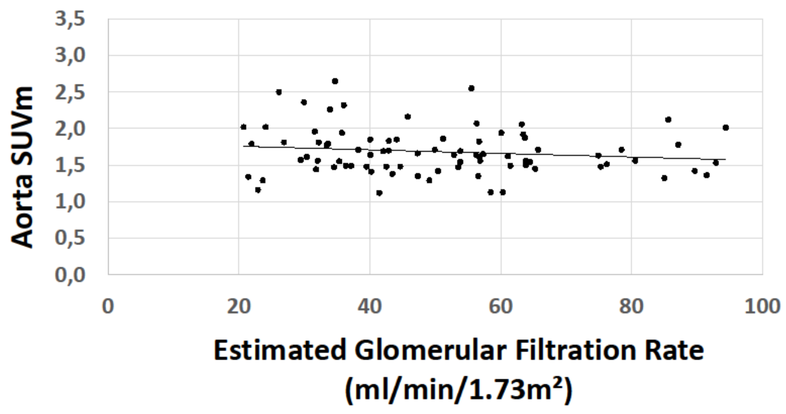


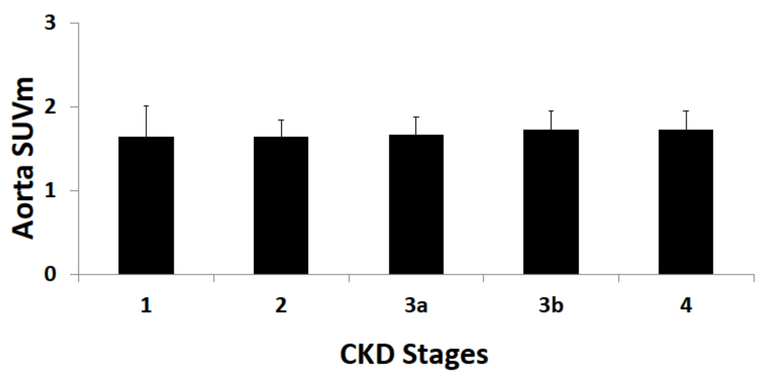
Four 1-ml volumes of interest (VOI, white circles in left panel) are drawn in the cortex area of both upper and lower poles of the renal transplant, *at distance from the pyelocaliceal zone*

Results









No significant correlation was observed between eGFR and kidney SUVmean *(ρ, 0.119; p, 0.28)* or aorta SUVmean *(ρ, -0.144; p, 0.20)* considering the whole cohort.

ANOVA showed no difference of kidney *(p, 0.62)* and aorta *(p, 0.85)* SUVmean between CKD groups.

Our data suggest that the uptake of ^{18}F-FDG by renal allograft within an hour *post* injection is not significantly impacted by CKD.

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