FDG-PET Associations with Pathological Response and Survival with Neoadjuvant Immunotherapy for Melanoma

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Background

- Neoadjuvant anti-PD-1 monotherapy induces pathological response in 34% and pCR in 20% of patients with stage III melanoma, which is associated with patients’ survival.
- Metabolic responses with 18F-FDG PET/CT seen in metastatic melanoma associate with excellent long-term survival.
- 18F-FDG PET/CT imaging might be predictive for pathological response and recurrence-free survival in the neoadjuvant setting.

Objectives

- This study sought to explore associations between change in FDG-PET and either pathological response or recurrence-free survival (RFS).

Methods

Data from two prospective neoadjuvant clinical trial cohorts of stage III pts with RECISt measurably nodal melanoma were pooled and analysed:
1. NeoTriO2 – 13 pts received 2 doses of pembrolizumab alone
2. NeoPeker14 – 20 pts received 2 doses of pembrolizumab and 5 weeks of levantinib
- All pts underwent baseline and week 6 (preoperative) FDG-PET assessments and all had surgery.
- PET responses were evaluated based on the modified EORTC criteria15. In addition to the standard categories: Complete Metabolic Response (CMR), Partial Metabolic Response (PMR), Stable Metabolic Disease (SMD), and Progressive Metabolic Disease (PMD), a novel category was established, near-CMR, where the maximum standardized uptake value (SUVmax) decreased by more than 90% or residual uptake similar to background.
- PET responses were determined while blinded to the outcome data. Pathological response was determined as per INMC criteria. Response was also assessed using RECIST criteria.

Results

- The extent of SUVmax decrease correlates with pathological response and RFS.

Conclusions

- FDG-PET demonstrates good utility in predicting pathological response and survival with neoadjuvant immunotherapy in melanoma.
- PD-1 PET may identify pts who are going to be pathological responders and who may de-escalate surgery, or non-responders who may benefit from an alternative neoadjuvant therapy prior to surgery.

References


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