#169 [18F]2-fluoro-2-deoxy-D-glucose positron emission tomography/computed tomography (18FDG-PET/CT) in patients treated with immune checkpoint inhibitors (ICI) for microsatellite instability-high metastatic colorectal cancer (MSI mCRC)

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Background

- 5% of **metastatic colorectal cancer** (mCRC) display a **deficient mismatch repair** phenotype (dMMR)
- Immune checkpoint inhibitors (ICI) are clinically efficient in the treatment of dMMR mCRC but the assessment of their efficacy remains a challenge
- The interest of 18FDG-PET/CT to evaluate the efficacy of ICI remains unclear.

Objectives

- Characterization of **end-of-treatment 18FDG-PET/CT**
- Association between end-of-treatment 18FDG-PET/CT and **pathological complete response (pCR) in resected residual lesions after ICI**

Materials and Methods

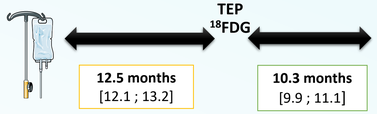
- **Cohort A :** All patients from the multicenter NIPICOL phase II study (NCT03350126) with an end-of-treatment 18FDG-PET/CT were included ; patients in NIPICOL study received **nivolumab plus ipilimumab for 3 months, then nivolumab alone for a total of 1 year**
- **Cohort B :** ICI-treated MSI mCRC patients from Saint-Antoine hospital (Paris, France) who performed a 18FDG-PET/CT prior to the **resection of a residual lesion.**
- **CMR = complete metabolic response** ; defined as the absence of lesions with a standard uptake value maximal (SUV_{max}) superior to the normal liver SUV_{max}.

Results

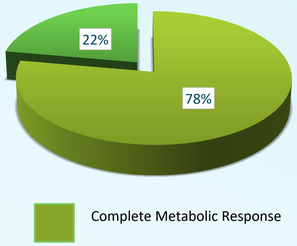
Patients in cohort A →

36 patients from the NIPICOL trial with end-of-treatment 18FDG-PET/CT:

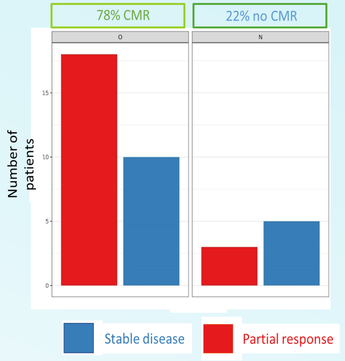
- Median Age (years) : 54
- Primary tumour sidedness :
  - Right colon 53%
  - Left colon 36%
  - Rectum 19%
- Metastatic sites :
  - Nodes 58%
  - Liver 53%
  - Lung 11%
- **1/36 had a progression**



Complete metabolic Response →



Correlation with iRECIST criteria



No significant association (p = 0.22)

Patients in cohort B →

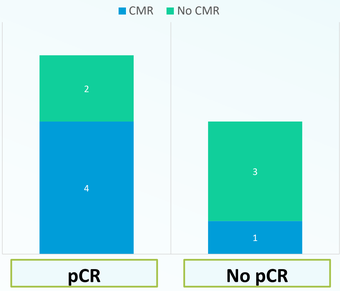
10 patients with resected, post-immunotherapy residual lesions

- 6 patients wtih pCR
- 5 patients with MCR ; among them, 4 had pCR

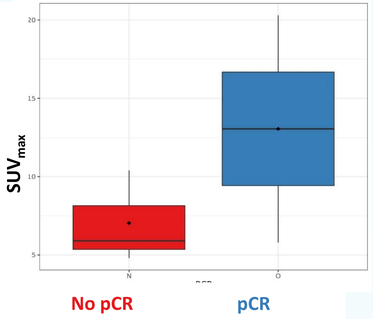
18FDG-PET/CT performances to predict pCR

- Se = 75% [43 ; 100]
- Spe = 67% [33 ; 100]
- VPP = 60 % [25 ; 95]
- VPN = 80% [50 ; 100]

Pathologic complete response →

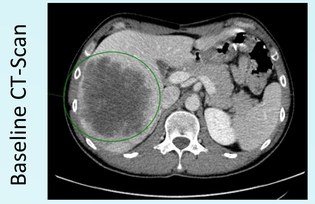


Median SUV_{max} and pCR

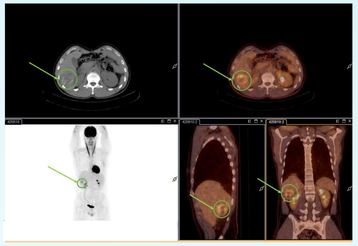


Cohort B, 2 patients with complete pathological responses

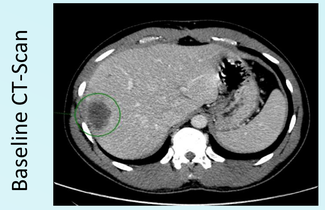
False positive



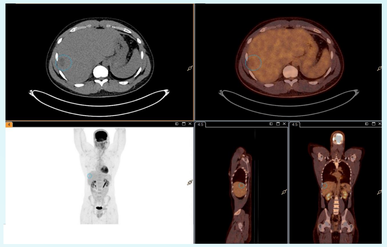
End-of-treatment 18FDG-PET/CT before surgery



True negative



End-of-treatment 18FDG-PET/CT before surgery



Conclusion

- MCR is frequent in patients with MSI mCRC treated with ICI
- High SUV_{max} seems to be more predictive of immune reaction related to the ICI treatment than the presence of tumour cells
- 18FDG-PET/CT does not appear as a suitable tool to predict CR or pCR.

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