**BACKGROUND**

Nivolumab (N) is a monoclonal antibody directed against the cytotoxic T lymphocyte-associated antigen 4 (CTLA-4), a negative regulator of T-cell co-stimulation, which is involved in the control of immune responses. Its role in the management of patients with recurrent or metastatic head and neck squamous cell carcinoma (R/M HNSCC) is a matter of debate.

**OBJECTIVE**

To describe the different patterns of radiological responses to anti-CTLA-4 and their frequency in R/M HNSCC.

**PATIENTS AND METHODS**

T was a single-arm phase II trial. From 08/2017 to 11/2018, 343 pts with platinum refractory R/M HNSCC were treated with Nivolumab (3 mg/kg, Q2W) (Even et al Ann Oncol 2020).

Timing of studied CT scans for this study was: pre-baseline, baseline before N. 1st evaluation (E1) at week 8, 2nd evaluation (E2) at week 16. All CT scans were independently re-analyzed by two expert radiologists . Tumor response was evaluated by RECIST 1.1. HP was evaluated using the 3rd CT by 2 different methods (Champiat et al Clin Cancer Res 2017 (C), Ferrara et al JAMA Oncol 2018 (P)).

PSPD was defined as progression at E1 and stabilization of tumor growth or response at E2. DR was studied at E1 and defined as objective response (OR) in loco-regional (LR) site and no OR in metastatic (M) site or no OR in LR site and OR in M site.

**RESULTS**

Of the 114 pts evaluable with C method, 16 (13%, 95% confidence interval (CI) 8-21) experienced hyperprogression. Of the 117 pts evaluable with F method, 9 (8%, 95% CI 4-14) experienced hyperprogression.

**DISSOCIATED RESPONSE**

208 pts had CT at baseline and at E1 with the following characteristics:
- Male: 108 (52%), Female: 100 (48%)
- Age: 65 (32%)
- ECOG: 0: 67 (32%), ECOG: 1: 34 (16%), ECOG: 2: 5 (2%)
- Prior systemic therapy: 6%, One line: 31%, Two or more lines: 63%.
- No prior systemic therapy: 54 (26%), One prior systemic therapy: 52 (25%), Two or more prior systemic therapies: 14 (7%).
- metastatic disease: 37 (18%)
- Loco-regional disease: 67 (33%)
- Both: 54 (26%)
- Type of tumor:
  - squamous cell carcinoma: 146 (71%)
  - adenocarcinoma: 33 (16%)
  - other: 29 (14%)
- Last N: 09 Jul 18
- E2: 19 Jul 18
- Date of CT scan: Baseline 33% (26/78), E1 67% (52/78), E2 10% (8/78).
- CT was described as follows:
  - N 0 (0%)
  - N 1 (0%)
  - N 2 (0%)
  - N 3 (0%)
  - P 0 (0%)
  - P 1 (0%)
  - P 2 (0%)
  - P 3 (0%)
  - R 0 (0%)
  - R 1 (0%)
  - R 2 (0%)
  - R 3 (0%)
- Time of progression:
  - 14 (93%)
  - 1 (33%)
- Type of progression:
  - progression in LR sites: 14 (93%)
  - progression in M sites: 1 (33%)
- Hyperprogression was defined as an increase in the sum of the products of the diameters of the measurable lesions of >=50% between two successive scans or an increase in the sum of the products of the diameters of the target lesions of >=100% between two successive scans (van Elmpt et al. Radiother Oncol 2010 95: 319-324).

**PSEUDOPROGRESSION**

127 pts were evaluable for PSPD. 3% (95% CI 1-7%) met the criteria.

**CONCLUSION**

In this prospective study, we estimated the rate of R/M HNSCC with hyperprogression under Nivolumab between 4 and 21%. The rate of pseudoprogression is very low, which should be considered in our clinical practice.

19% (95% CI 10-31%) of the pts presented dissociated response, mainly by absence of objective response in loco-regional sites while objective response occurred in metastatic sites.