Experimental prospective multicentral study to define brain toxicities in skull-base and sinonasal cancers after particle therapy.

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In patients with skull-base tumors (SBTs) and paranasal cancers (PSCs), due to the high doses required and the proximity of brain tissue to treatment volumes, radiation-associated brain toxicity (BT) is a possible late complication of both conventional and particle radiotherapy (PT). BT may result in relevant neurological and neuropsychological impairment, potentially compromising patients' quality of life and causing long-term morbidity

An experimental prospective multicentric study sponsored by Ministry of Health (project RF-2021-12373476) has been ongoing since 2021

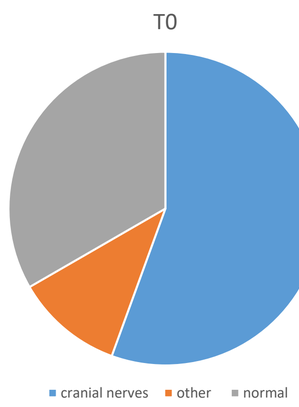
We hypothesize that a multimodal longitudinal assessment of patients undergoing PT for SBTs and PSCs with clinical scales, neuropsychological tests and advanced MRI techniques will allow us to identify risk factors for the development of BT.

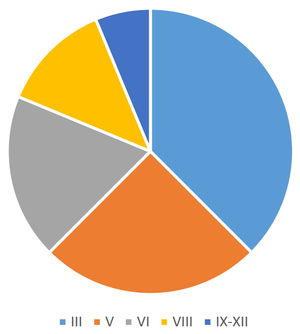
Primary objective : determined the frequency of BT in patients with SBTs or PSCs treated with PT and to identify distinct clinico-radiological patterns as part of the spectrum of neurological manifestations of BT.

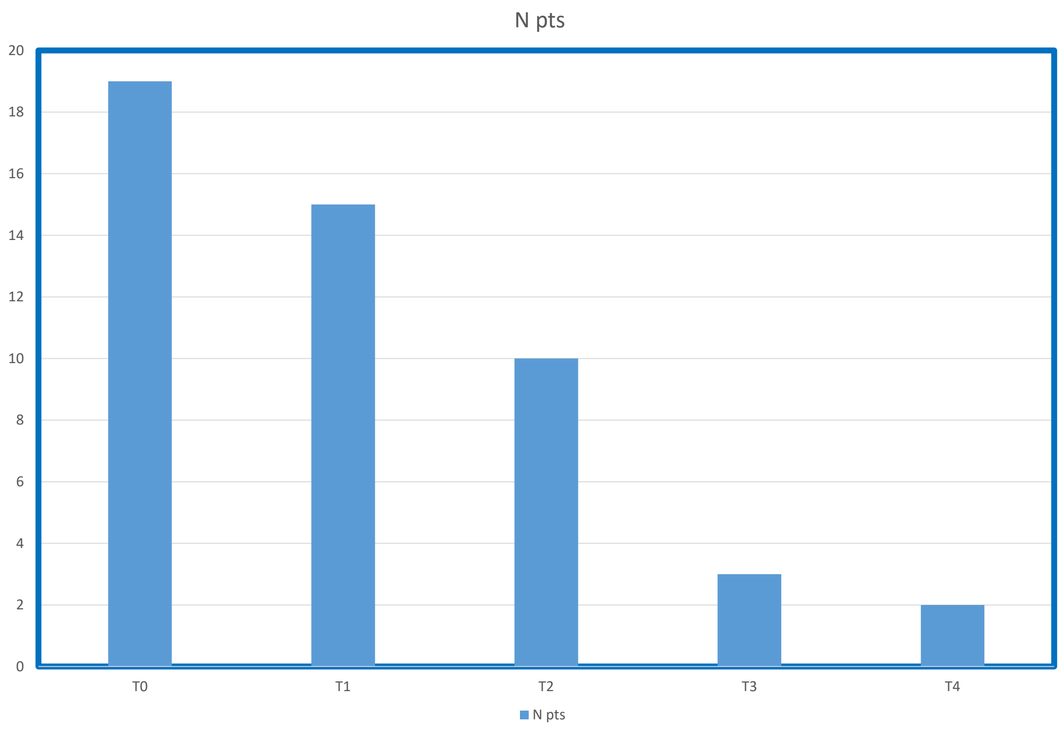
Secondary objectives: analyzed the impact of BT on patients' functional status and quality of life, to build a predictive model of development and long-term outcomes of BT and to propose , on the basis of the results, a risk score assessment tool for clinical use.

29 patients:

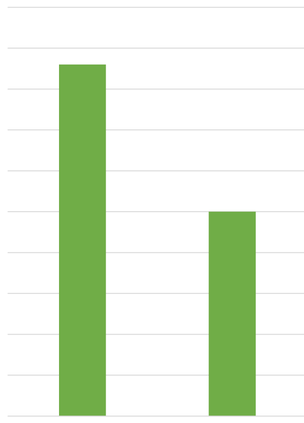
- 21 enrolled
- 5 drop out
- 2 disease recurrence
- 1 screening failure







Materials: we plan to enroll 50 subjects
Follow-ups are scheduled at 3, 6 and 12 months (Step t0, t1, t2, t3 and t4) after PT. Timepoints during the follow-up will be shortened in case of neurological complications.



DISCUSSION AND CONCLUSIONS

Discussion At the moment no patients presented defined BT. In one case, still under observation, clinical and radiological evidence showed acute brain toxicity. Conclusions Our results, although indicative of low toxicity, are still based on too few cases.

DIPARTIMENTO DELL'INNOVAZIONE
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