
# GENETIC PROFILE AND CARBON ION RADIOTHERAPY OF HEAD AND NECK ADENOID CYSTIC CARCINOMA: BALANCE NEEDLE FOR ONCOLOGICAL OUTCOME?

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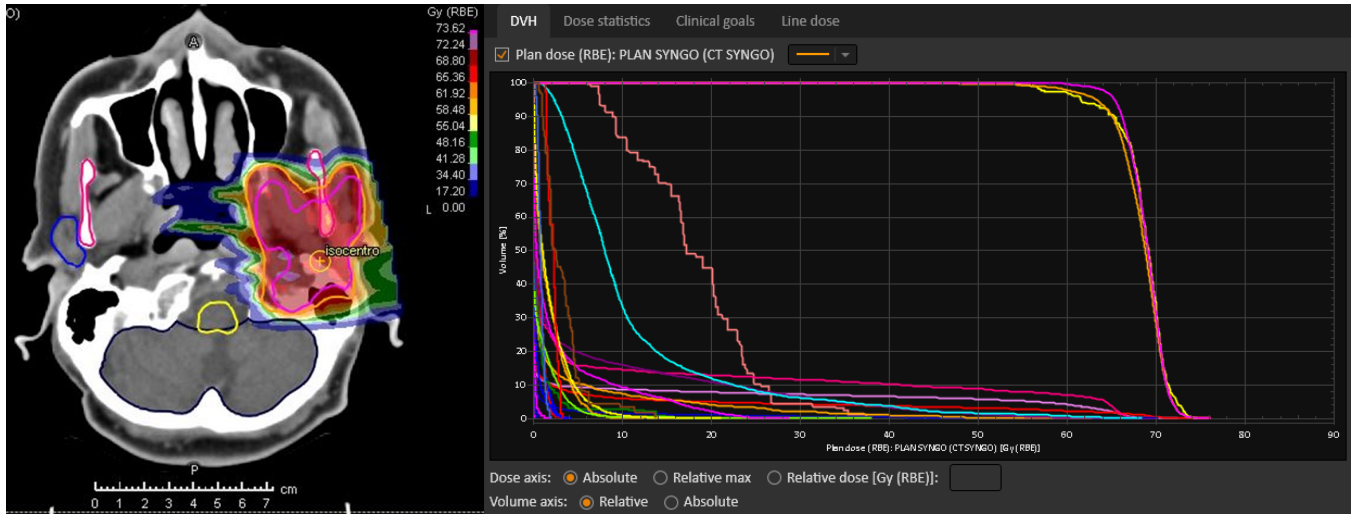
## AIM

To identify whether the presence of any mutation in Head and Neck Adenoid Cystic Carcinoma (HNACC) detected by Next Generation Sequencing (NGS) might affect oncological outcomes of a cohort of patients treated with definitive carbon ion radiotherapy (CIRT).




## METHODS

Pts with HNACC treated with definitive CIRT from March 2013 to March 2018 for whom NGS testing was available.

Any mutations versus no mutation data confirmed by NGS were recorded to assess their impact on the outcome.

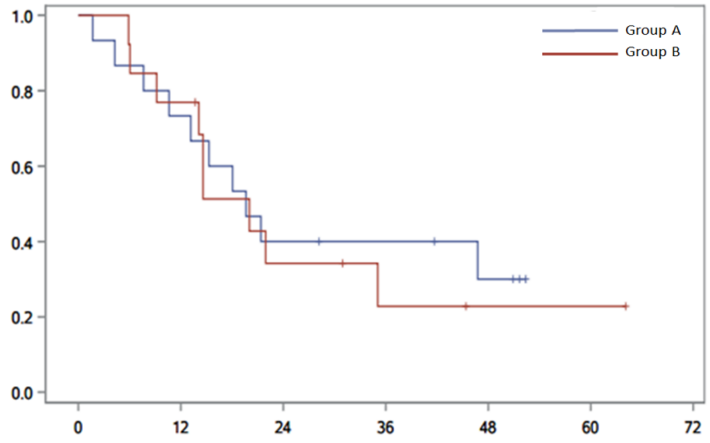
Local control (LC) and overall survival (OS) were estimated according to Kaplan Meier curves.

The associated Hazard Ratio (HR) was reported with the 95% confidence interval range (95% CI) and significance was calculated with the log-rank test.

## RESULTS:

- 28 pts treated with CIRT 68.8 Gy (RBE) in 16 fractions.
  - **15 pts (54%): silent NGS (Group A)**
  - **13 pts (46%): any mutation at NGS (Group B)**
- Median FUP: 57 months (range, 50-71 months)
- **LC 2y and 4y:** 40% and 30% (**Group A**), 30% and 22% (**Group B**).
- **OS 2y and 4y:** 100% and 94% (**Group A**), 94% and 68% (**Group B**)

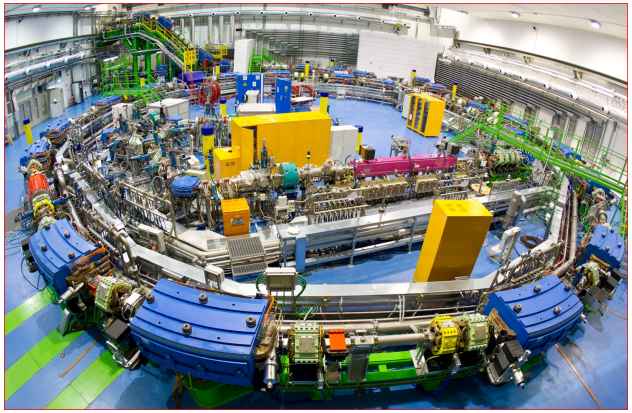
**Figure 1. Local Control (LC)**




## RESULTS

The HR was:

- LC: 1,172 (range IC 95%: 0,472-2,908, p=0,73).



**CONCLUSIONS**

Based on our results, mutational status did not seem to influence outcomes of HNACC treated with CIRT. However, the possible selection bias of the cohort and the biological heterogeneity of the mutated patients may have influenced the results. Further studies are warranted to explore the role of the biology to predict the response to CIRT.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