

# **FDG-PET/CT FOR MONITORING NEOADJUVANT CHEMOTHERAPY IN LOCALLY ADVANCED BREAST CANCER WITH AXILLARY LYMPH NODE INVOLVEMENT.**

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## **Purpose:**

To assess the role of FDG-PET/CT in patients with locally advanced breast cancer (LABC) in detection of axillary lymph node (ALN) involvement before neoadjuvant chemotherapy (NACT) and evaluation of ALN response to therapy.

## **Methods:**

6 patients (29-58 years) with non-inflammatory, large (>3cm), or LABC received 4 doses of primary NACT. PET was performed in the same conditions before treatment and 21 days after the second NACT dose. High dose FDG (8MBq/Kg). 8 minutes per bed position, and imaging at 1 h and 3 h post injection were used to increase sensitivity of PET. Primary and ALN lesions identified by clinical examination (CE) mammography and ultrasonography (USG) were confirmed by evaluation of surgical specimens and ALN dissection (ALND). PET results were evaluated by visual inspection and by determination of maximal standardized uptake value (SUV). Based on histological analysis surgical resection specimens, the patients were classified as responders or non-responders with taking in account the results of ALND.

## **Results:**

All ALN detected by CE and/or USG were identified by PET/CT. One patient had negative ALND: no ALN involvement was detected by PET after therapy. The mean SUV decrease for tumours was 67.2%(+/-34) at 1 h and 68.1%(+/-29.4) at 3 h in responders, but 47.7%(+/-9) and 50.6%(+/-16) respectively in non-responders. For ALN detected before and after treatment, the mean rate was 89.3%(+/-9.5) at 1 h and 86.9%(+/-13.6) at 3 h in responders but 57.5%(+/-4.2) and 56.7%(+/-0.6) respectively in non-responders. SUV at 3 h were often higher than SUV at 1 h, but without notable difference in prediction of the response.

## **Conclusion:**

Reduction in tumour SUV after two cycles of NACT seems interesting to discriminate between responders and non-responders, but interpretation of results for ALN is more difficult because of the non-visualisation of ALN uptake after therapy in some responders as well as in some non-responders.

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