# Role of postoperative follow-up with $^{18}$F-FDG PET/CT in asymptomatic NSCLC patients
# A retrospective single-institution study

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Poster # 95P

## Background

- The optimal surveillance strategy in patients with resected non-small cell lung cancer (NSCLC) is unknown and there are no conclusive guideline recommendations (1) (2)
- Early detection of recurrences by follow-up imaging might improve survival
- Whole-body 18F-FDG-PET/CT is often judged to be the optimal imaging modality given its high accuracy in preoperative staging and is therefore widely used

## Material and Methods

### Design

Retrospective data analysis of 205 patients (***Table 1***) with stage I-III NSCLC with

- primary tumor resection between 2016 and 2019 at the University Hospital Basel, Switzerland,
- preoperative FDG-positive primary tumor on PET/CT,
- Standardized institutional postoperative surveillance imaging with and at least one postoperative PET/CT *

* 18F-FDG-PET/CT scan at 6, 12 and 24 months after surgery; chest CT scan at 18 months; chest X-ray at 2 weeks, 3, 9, 15, 21 and 30 months after surgery. Following 24 months: annual chest CT scan for stage I-II, annual PET/CT scan for stage III disease.

### Objective

- To present outcome, patterns of recurrence and secondary primary lung cancer (SPLC), as well as secondary curative intended treatment approaches

**Acknowledgement**
We would like to thank patients for consenting to the use of their data for scientific purposes.

## Results

| | Overall | No recurrence or SPLC | Recurrence or SPLC |
|---|---|---|---|
| **Patient Number** | 205 | 142 | 63 |
| **Age at diagnosis (median [IQR])** | 69 [62,75] | 68 [62,75] | 70 [63,74] |
| **Sex (%)** | | | |
| **Female** | 91 (44.4) | 66 (46.5) | 25 (39.7) |
| **Male** | 114 (55.6) | 76 (53.5) | 38 (60.3) |
| **Tumor histology (%)** | | | |
| **Adenocarcinoma** | 138 (67.3) | 96 (67.6) | 42 (66.7) |
| **Squamous cell carcinoma** | 54 (26.3) | 41 (28.9) | 13 (20.6) |
| **Large cell carcinoma** | 4 (2.0) | 1 (0.7) | 3 (4.8) |
| **Mixed histology** | 9 (4.4) | 4 (2.8) | 5 (7.9) |
| **UICC stage (%)** | | | |
| **Stage I** | 120 (58.5) | 93 (65.5) | 27 (42.9) |
| **Stage II** | 36 (17.6) | 18 (12.7) | 18 (28.6) |
| **Stage IIIA** | 36 (17.6) | 24 (16.9) | 12 (19.0) |
| **Stage IIIB** | 13 (6.3) | 7 (4.9) | 6 (9.5) |
| **Type of surgery (%)** | | | |
| **Pneumectomy** | 8 (3.9) | 4 (2.8) | 4 (6.3) |
| **Bilobectomy** | 12 (5.9) | 6 (4.2) | 6 (9.5) |
| **Lobectomy** | 163 (79.5) | 118 (83.1) | 45 (71.4) |
| **Sublobar resection** | 17 (8.3) | 11 (7.7) | 6 (9.5) |
| **Other** | 5 (2.4) | 3 (2.1) | 2 (3.2) |
| **Smoking history (%)** | | | |
| **Current** | 99 (48.5) | 67 (47.5) | 32 (50.8) |
| **Former** | 87 (42.6) | 58 (41.1) | 29 (46.0) |
| **Never** | 18 (8.8) | 16 (11.3) | 2 (3.2) |

**Table 1.** Patient's and treatment characteristics.

- Median follow-up 26.3 months (range, 4.1-60.6)
- Median of two surveillance PET/CT scans (range, 1-6)
- 22% of patients (n=46) experienced recurrence and 8% had SPLC (n=17) (***Figure 1***)

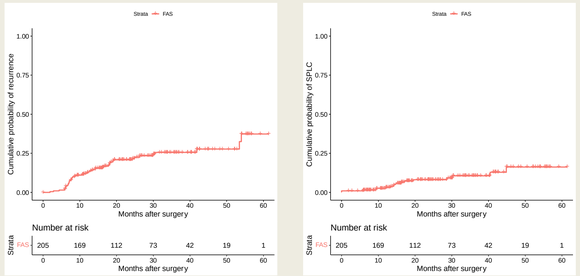


***Figure 1.*** Incidence of recurrence (left) and SPLC (right).

- 83% of all recurrences were primarily detected in one of the surveillance PET/CT scans, and 65% of all SPLC
- 63% of recurrences were distant recurrences
- 25% of patients had non-malignant FDG-positive findings
  - 71% infections
  - 15% postoperative alterations
  - 8% silico-anthracosis
- Symptoms associated with recurrence were reported in 48% of patients
- Among all patients with recurrence, 37% (n=17) were eligible for secondary curative intended treatment.
- Recurrence-free survival (RFS) for patients with secondary curative intended treatment at 24 months was 53% [95%CI; 31-91%] (***Figure 2***)
- Kaplan-Meier curves of RFS for patients with recurrence and SPLC according to disease stage are presented in ***Figure 3***.

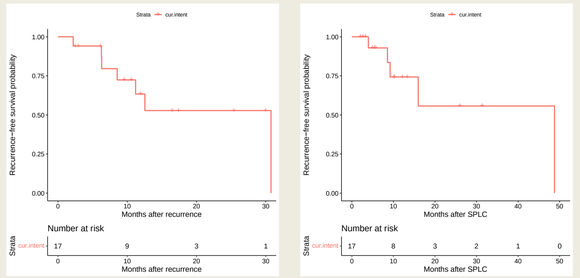


***Figure 2.*** RFS after secondary-curative intent treatment for recurrence (left) and SPLC (right).

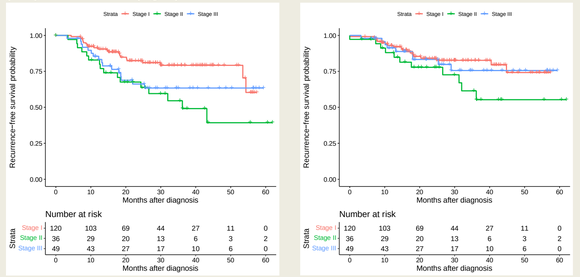


***Figure 3.*** RFS for recurrence (left) and SPLC (right) according to disease stage.

## Conclusion

- Recurrence was identified in 83% of all cases in one of the three PET/CTs performed as part of our imaging protocol during the first two years after resection
- Nearly all patients with non-distant recurrence qualified for a secondary curative intended treatment
- Stage-dependent surveillance imaging might be beneficial

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**Disclosures Anna Kaumanns**: None

**References**
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