Time course of FDG uptake during chemotherapy

- High grade non-Hodgkin lymphoma during CHOP therapy
- Model for a tumor that responds well to chemotherapy
- FDG-PET in 11 patients on days 0, 7, and 42 of therapy
- Calculation of FDG-uptake (SUV) and metabolic rates (Patlak approach)
Time course of therapy induced changes during CHOP therapy

Non-Hodgkin lymphoma

Römer et al.
Quantitative assessment of glucose metabolism during CHOP therapy

SUV [avg], SUV [avg-gl], influx constant $K$

Treatment monitoring with FDG-PET in esophageal cancer

Applications

• Assessment of tumor viability after completion of therapy

• Prediction of treatment response early in the course of therapy
FDG-PET in esophageal cancer

Reduction of FDG-uptake after chemoradiotherapy and histopathologic response

- Reduction of FDG uptake (%)

$\text{p} = 0.002$

- $< 10\%$ viable tumor cells
  - $n = 13$

- $> 10\%$ viable tumor cells
  - $n = 11$

Prediction of response to chemotherapy in patients with esophageal cancer by FDG-PET

N = 27

N = 15

p < 0.001

reduction of FDG-uptake

non-responding tumors

responding tumors
Prediction of response to chemotherapy in patients with esophageal cancer


> 35% reduction of FDG uptake (N = 15)

≤ 35% reduction of FDG uptake (N = 27)

p = 0.01