

Abstract – Radiologisk Høstemøte 2021

Henning Langen Stokmo^{a,b}, Mahmoud Aly^{c,d}, Austin J. Borja^{c,e}, Siavash Mehdizadeh Seraj^c, Rina Ghorpade^c, Xuan Miao^c, Geir Olav Hjortland^f, Eirik Malinen^{g,h}, Thomas J. Werner^c, Abass Alavi^c, Mona-Elisabeth Revheim^{a,b,c}

^aDivision of Radiology and Nuclear Medicine, Oslo University Hospital, Oslo, Norway

^bInstitute of Clinical Medicine, Faculty of Medicine, University of Oslo, Norway

^cDepartment of Radiology, Hospital of the University of Pennsylvania, Philadelphia, PA, USA

^dDepartment of Radiology, Asyut University Hospital, Asyut, Egypt

^ePerelman School of Medicine at the University of Pennsylvania, Philadelphia, PA, USA

^fDepartment of Oncology, Oslo University Hospital, Oslo, Norway

^gDepartment of Medical Physics, Oslo University Hospital, Oslo, Norway

^hDepartment of Physics, University of Oslo, Norway

Foredragsholder: Henning Langen Stokmo

E-post: helangen@gmail.com

Tlf: +47 936 72 069

Title: [¹⁸F]FDG PET/CT in the prediction of overall survival in patients with gastroenteropancreatic neuroendocrine carcinomas

Introduction: Clinical application of fluorine-18 labelled 2-deoxy-2-fluoroglucose (¹⁸F]FDG) positron emission tomography/computed tomography (PET/CT) for prognostication in neuroendocrine carcinomas (NEC) is evolving. A positive [¹⁸F]FDG PET is associated with poor survival in neuroendocrine neoplasms (NENs), but the use of volumetric parameters from [¹⁸F]FDG PET have not been thoroughly evaluated for survival prognostication in NECs.

Methods: Sixty-six patients (55% males, mean age 62±13 years) diagnosed with NEC who underwent a [¹⁸F]FDG PET/CT examination and a biopsy within 90 days (median -22, range -85 – 89) were included. Volume of interest of lesions were generated with an adaptive thresholding software (ROVER) from which total metabolic tumour volume (tMTV) and total total lesion glycolysis (tTLG) were calculated. Patients were dichotomised into low and high metabolic groups based on median tMTV and tTLG, respectively. Overall survival (OS) for patients with tMTV/tTLG above and below its respective median was compared using the Kaplan–Meier method and the log-rank test. Uni- and multivariable regression was used to estimate effect sizes and adjust for other known prognostic factors.

Results: Median tMTV was 208cm³ and median tTLG 1899g. Median OS in the low vs high metabolic groups were: tMTV 21.2 vs 5.7 months (HR 2.53, *p*=0.0007); tTLG 22.8 vs 5.7 months (HR 2.42, *p*=0.001). When adjusted for other prognostic factors, HR = 1.98 (*p*=0.04); HR = 1.90 (*p*=0.09) for tMTV and tTLG, respectively.

Conclusion: Patients with NEC showing higher tMTV/tTLG seem to have poorer survival and may thus have more aggressive disease.