

OP-A-19

FLUORODEOXYGLUCOSE PET/CT SCAN ASSESSMENT IN DIFFERENTIATED THYROID CANCER FOLLOWING RADIOIODINE TREATMENT

<https://doi.org/10.15605/jafes.036.S19>

Ahmad Zaid Zainal, Reana Devi Arunasalem, Wan Muhd Anas Wan Hussain, Siti Zarina Amir Hassan

Nuclear Medicine Department, Kuala Lumpur Hospital, Malaysia

INTRODUCTION

Radioiodine is essential in post-operative differentiated thyroid cancer (DTC) management. A proportion of DTC may eventually become more aggressive and less sensitive or refractory towards radioiodine. Assessment using fluorodeoxyglucose positron emission tomography/computerised tomography (FDG PET/CT) is warranted in these patients. We aimed to evaluate the characteristics of DTC cases referred for FDG PET/CT and their association with positive findings.

METHODOLOGY

We performed a retrospective cross-sectional analysis and audit of DTC patients in our institution who were referred for FDG PET/CT between November 2017 and April 2019. Those who defaulted PET/CT appointment and clinic follow-up with incomplete documentation were excluded. A total of 113 cases were included. Clinical parameters, laboratory results and scan results were recorded and categorised accordingly.

RESULTS

Majority were females (71.7%), with mean values for age and cancer duration at 52.1 and 9.3 years, respectively. Papillary thyroid carcinoma was predominant (78.8%). Majority had stage I to II disease (77%) with ≤ 4 sessions of radioiodine treatment (70.8%). Only 31% demonstrated radioiodine-avid residual disease. Elevated serum thyroglobulin of 11 to 99 $\mu\text{g/L}$ was noted in 43 (38.1%) and $>100 \mu\text{g/L}$ in 34 patients (30.1%) prior to PET/CT scan. FDG-avid malignancy was observed in 64 patients (56.6%), whereby 30 (26.5%) were considered to have mixed radioiodine-avid and FDG-avid disease following PET/CT assessment. Baseline nodal involvement, distant metastases, stage III to IV disease, cumulative radioiodine doses of at least 600 mCi, markedly high thyroglobulin and residual disease on latest radioiodine scan were significantly associated with FDG-avid malignancy ($p < 0.05$). The presence of baseline nodal involvement was the most significant parameter (OR=3.7).

CONCLUSION

FDG PET/CT plays important role in suspected radioiodine refractory DTC cases. Several clinical characteristics were associated with FDG-avid malignancy.