

# False Positive <sup>18</sup>F-DG PET/CT Findings in a Cohort of 1800 Patients Treated for Malignant Lymphoma

M. Abdelsalam<sup>1</sup>, MD, M. Abouzied<sup>2</sup>, MD, A. Sugair<sup>2</sup>, MD, I. Maghfoor<sup>1</sup>, MD, S. Akhtar<sup>1</sup>, MD.

King Faisal Specialist Hospital and Research Center, Riyadh, Saudi Arabia

(1) Cancer Centre, Medical Oncology

(2) Department of Radiology

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## Background/Purpose

<sup>18</sup>F-DG PET/CT has been emerging as an invaluable tool in the management of patients with lymphoma; particularly by providing accurate staging, restaging and assessment of response to therapy. However, FDG is not a specific tracer, it has an inherent limitation by localizing to non-tumorous tissues/non malignant tissues including post therapy induced inflammation.

## Materials and Methods

2010 consecutive PET-CT scans were performed in eighteen hundreds patients with HD and DLBCL patients in the period of October 2005 to December 2008. FDG-PET-CT was performed to evaluate the response to therapy post either chemotherapy or chemoradiotherapy. The average time post therapy is 4-6 weeks. Whole body PET-CT was performed approximately 60 minutes post injection of 10-15 mCi of <sup>18</sup>F-FDG using an 8 slice PET/CT system (Discovery LS;GE) and utilizing low Kvp (100kVp), with 80 mA, Slice thickness of 3.75 mm, and Pitch of 1.675:1.

The criteria for response assessment set up by the subcommittee of International Harmonization Project in Lymphoma (JCO, 25: 571-578, February 2007) has been adopted in interpreting all the cases.

## Results

Thirty one patients (31/1800, 0.02%) had an abnormal FDG uptake that was falsely reported as positive for residual disease.

The standard of reference for PET/CT findings was the histopathology in 20 patients and radiological/clinical follow up for at least 6 months in 11 patients.

Reactive, and lymphoid follicular hyperplasia represented the majority of the histopathological findings (18/31, 58%). Granulomatous disease was seen in 2 patients.

Furthermore, infectious process including, pneumonia, upper respiratory tract infection, gastritis and prostatitis were seen in (11/31, 35%).

## Conclusion

Standardized approaches for performing and interpreting PET/CT scans have minimized significantly the false positive rate.

Owing to the non specificity of FDG, the majority of the false positive findings were related to either therapy induced inflammatory process or infectious process.