

Real-life Experience for Integration of PET-CT in the Treatment of Hodgkin Lymphoma in Lebanon

Riwa Sakr,¹ Marcel Massoud,¹ Fouad Kerbage,¹ Layale Rached,¹ Jean Zeghondy,¹ Elie Akoury,¹ Fady Nasr,² Georges Chahine²

Abstract

Hodgkin lymphoma (HL) is a highly curable disease. We analyzed the data regarding the usage of PET-CT at diagnosis, during treatment (interim PET), and at the end of treatment. The first PET-CT system was introduced in Lebanon in April 2002 but was not used for the evaluation of HL. The usage of PET-CT has emerged as a highly valuable staging and follow-up method in the treatment of HL 8 years after the introduction of PET in Lebanon.

Background: Hodgkin lymphoma (HL) is a highly curable disease; < 80% of patients will achieve long-term survival. Positron emission tomography-computed tomography (PET-CT) has played a major role in the evaluation of both disease staging and response and has become an essential component in tailoring patients' treatment. We report the effect of integrating PET-CT into the management of HL in Lebanon. **Patients and Methods:** We analyzed the data regarding the usage of PET-CT at diagnosis, during treatment (interim PET), and at the end of treatment. We also analyzed the PET-CT findings from 2009 to 2015. **Results:** The first PET-CT system was introduced in Lebanon in April 2002 but was not used for the evaluation of HL. Early in 2009, we started to incorporate PET-CT into the treatment of HL. By the end of 2009, 70% of patients were undergoing PET-CT at diagnosis and at the end of treatment. This proportion remained constant until 2013, when an increase occurred, with $\leq 94\%$ of patients undergoing PET-CT at diagnosis. The usage of CT at diagnosis decreased significantly from 70% before 2009 to 52% after 2015. In contrast, CT usage at the end of treatment has fluctuated from 10% in 2009 to 0% in 2012, 2013, and 2014 and 11.76% in 2015. **Conclusion:** Functional imaging techniques are increasing in popularity compared with anatomic imaging. The usage of PET-CT has emerged as a highly valuable staging and follow-up method in the treatment of HL 8 years after the introduction of PET in Lebanon. PET was used first to improve the staging, then to evaluate the treatment response, and, recently, to tailor therapy according to the response.

Clinical Lymphoma, Myeloma & Leukemia, Vol. 17, No. S1, S92-5 © 2017 Elsevier Inc. All rights reserved.

Keywords: HL, Interim PET, PET-CT, PET-CT timing, Real life experience

Introduction

Hodgkin lymphoma (HL) is a highly curable disease, with > 80% of patients experiencing long-term survival. In Lebanon, the

incidence of HL is 4.2 and 2.8/100,000 persons in males and females, respectively.

Positron emission tomography-computed tomography (PET-CT) plays a major role in the diagnosis, staging, and evaluation of the treatment response in many malignancies and lymphoma, in particular, HL. It has become an essential tool for treatment decisions at diagnosis and at the end of therapy.

PET-CT is essential as a staging method before the initiation of treatment, because it provides more data on disease involvement, resulting in more accurate staging. More accurate staging, in turn, allows for minimization of toxic treatment modalities such as extended field radiotherapy and aggressive chemotherapy, improving patients' quality of life and diminishing the risk of

¹Holy Spirit University of Kaslik Medical School and Centre Hospitalier Universitaire-Notre Dame Des Secours, Jbeil, Lebanon

²Saint Joseph University Medical School, Beirut, Lebanon

Submitted: Jan 11, 2017; Accepted: Mar 22, 2017

Address for correspondence: Fouad Kerbage, MD, Holy Spirit University of Kaslik Medical School and Centre Hospitalier Universitaire-Notre Dame Des Secours, Jbeil, Lebanon

E-mail contact: fouadkerbage@hotmail.com

secondary malignancies.¹ PET-CT is also an evaluation method used after treatment completion to evaluate the residual mass. However, positive fluorine-18 fluorodeoxyglucose PET-CT findings at the end of treatment have poor prognostic value regarding progression-free survival.² Recent studies have established the role of interim PET during chemotherapy as a prognostic factor in determining the treatment response. PET-CT has also shown superiority compared with regular CT, with upstaging or downstaging occurring in 15% to 40% of cases.²

The International Harmonization project and, more specifically, their imaging subcommittee were the first to initiate the standardization of end-of-therapy PET in lymphoma, and their recommendations were adopted in 2007.³ However, more importantly, these criteria were not indicated for interim PET in the evaluation of progression. According to the National Comprehensive Cancer Network, fluorine-18 fluorodeoxyglucose PET-CT is the reference standard imaging modality for initial staging and evaluation of the treatment response in HL.⁴

PET was introduced to the Lebanese medical field in April 2002 but was not used for the diagnosis or treatment evaluation of HL. PET was first used for these purposes in 2009 and had a great effect on the management of HL. In the present review, we analyzed the effect of PET on the daily practice of HL management.

Patients and Methods

In the present retrospective analysis, we included all patients with a diagnosis of HL and analyzed the usage of PET-CT at diagnosis, during treatment (interim PET), and at the end of treatment. We also analyzed the findings of PET-CT from 2009 to the end of 2015 at 2 major university hospitals in Lebanon (Notre Dame De Secours University Hospital and Hotel Dieu De France Hospital). The diagnosis was confirmed by histopathologic examination. The data were collected by review of the medical records, including the physician notes and/or imaging and laboratory reports.

With a 95% confidence interval and 5% margin of error, the data were analyzed using Statistical Package for Social Science, version 20 (IBM Corp., Armonk, NY). Quantitative variables are expressed as the mean \pm standard deviation and qualitative variables as percentages.

We analyzed the data from 100 patients who had undergone PET-CT during the 7-year study period. The baseline patient characteristics (Table 1) included sex, age, HL subtype diagnosed, disease stage, chemotherapy regimen received, number of cycles, first response to treatment, year of diagnosis, and PET-CT findings at diagnosis, during treatment (interim PET), and at treatment end (Figures 1 and 2).

Results

The male-to-female ratio was 1.1:1. The median age at diagnosis was 32.9 years. Of the 100 patients, 86% had sclerosing nodular HL, 7% had mixed cellularity, and 7% had lymphocytic depletion HL. Also, 58% had localized disease and 42% had advanced-stage disease.

The percentage of patients diagnosed annually from 2009 to 2015 was 10%, 15%, 14%, 11%, 19%, 14%, and 17%, respectively. Early in 2009, we began to incorporate PET-CT into the

Table 1 Baseline Characteristics

Characteristic	n
Patients	100
Sex	
Male	52
Female	48
Age (y)	
Median	32.9
Range	16-73
Subtype	
Nodular sclerosing	86
Mixed cellularity	7
Lymphocyte rich	7
Lymphocyte depleted	0
Stage	
I and II	58
III and IV	42
Chemotherapy type	
ABVD	92
BEACOPP	2
Other	6

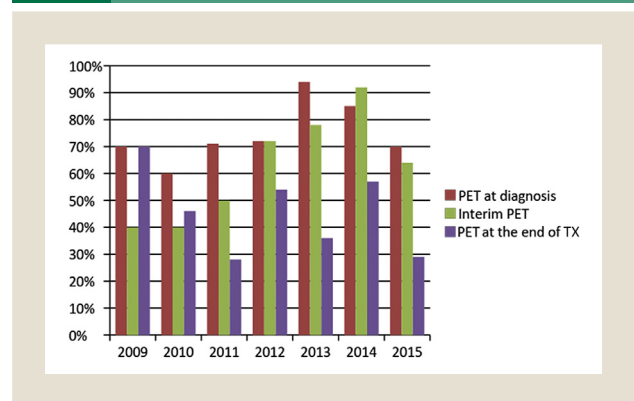
Abbreviations: ABVD = doxorubicin (Adriamycin), bleomycin, vinblastine, dacarbazine; BEACOPP = bleomycin, etoposide, doxorubicin (Adriamycin), cyclophosphamide, vincristine (Oncovin), procarbazine, prednisone.

management of HL. By the end of 2009, 70% of patients were undergoing PET-CT at diagnosis and at treatment end. This proportion remained constant until 2013, when an increase occurred, with \leq 94% of patients undergoing PET-CT at diagnosis.

Interim PET has increased in popularity since 2009, with 40% of patients undergoing PET-CT after 4 cycles of chemotherapy. This proportion had increased to 92% by 2014. In contrast, the use of PET-CT at treatment end has been decreasing, from 70% in 2009 to 29% in 2015.

The usage of CT at diagnosis has also decreased significantly, from 70% before 2009 to 52% after 2015. In contrast, the

Figure 1 Evolution of Positron Emission Tomography (PET)-computed Tomography From 2009 to 2015



Abbreviation: Tx = treatment.

Download English Version:

<https://daneshyari.com/en/article/5582082>

Download Persian Version:

<https://daneshyari.com/article/5582082>

[Daneshyari.com](https://daneshyari.com)