Definition of bulky disease in Early Stage Diffuse Large B cell Lymphoma on CT longitudinal and axial planes

Mohammad Ma'koseh[1], Suhaib Khater[1] , Heba Farfoura[2], Yumna Khatib[2], Zaid Omari[2], Hazim Ababneh[1] , Baha Alfayoumi[1], Ayat Taqash[3], Alaa Abufara[1], Omar Shahin[1], Yacob Saleh[1], Khalid Halahleh[1], Kamal Alrabi[1]

(1) Department of Internal Medicine, King Hussein Cancer Center, Amman-Jordan.
(2)Department of Radiology, King Hussein Cancer Center, Amman-Jordan.
(3) Scientific Research Office, King Hussein Cancer Center, Amman-Jordan

Background

- About 40% of patients with diffuse large B cell lymphoma (DBLCL) present with an-early stage disease.
- In this group of patients , tumor bulkiness and stage-adjusted International Prognostic Index (sa-IPI) are the main determinants of treatment and prognosis.
- Bulky disease is variably defined from 5-10 centimeters .

Objectives

- To investigate the minimal tumor diameter measured on CT scan axial and longitudinal planes that best correlates with relapse free survival (RFS).
- To evaluate the impact of combined modality treatment on RFS and overall survival (OS) in patients with bulky disease.

Materials & Methods

- Medical records of patients diagnosed with early stage DLBCL and treated at King Hussein Cancer Canter were reviewed.
- Maximal longitudinal and axial planes on initial CT scans were reviewed by two radiologist.
- Correlation between tumor dimensions and RFS and OS was done using Pearson correlation test.
- Survival analyses were performed using Kaplan-Meier method.

Results

- 127 patients were included with a median age of 47 years.
- 51(40.2%) patients were having extranodal involvement .
- Sa-IPI was 0-1 in 73 (57.4%) and >1 in the remaining patients.
- 82 (64.6%) patients treated with combined modality treatment (RCHOP followed by radiotherapy), while the remaining were treated with RCHOP only.
- Five centimetres was the cut-off that correlated with RFS in both longitudinal and axial dimensions and used to define bulky disease.
- 3-year RFS and OS for the whole group were 80.6% and 83.9% respectively.
- 78 (61.5%) patients with bulky disease in either dimension had 3-year RFS of 76.4% vs 95.4% for patients with non-bulky disease (p=0.0045) and 3-year OS of 71.8% vs 93.2% (p=0.0043) respectively, figures (1) and (2) .
- On multivariate analysis, bulky disease (p=0.028) and sa-IPI of >1 (p=0.044) correlated with RFS, while OS correlated with sa-IPI >1 (p=0.014).
- In patients with bulky disease, the use of combined modality treatment resulted in better RFS (83.3% vs 62.9% p=0.0157), and OS (81.6% vs. 52.1% p=0.0042) respectively, figures (3) and (4).

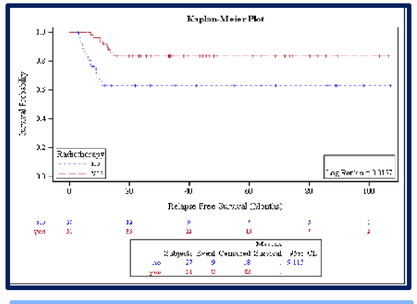


Figure (1) RFS in patients with bulky vs non bulky disease

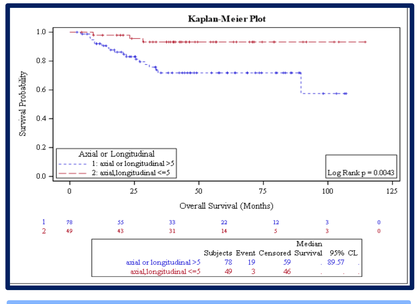


Figure (2) OS in patients with bulky vs non bulky disease

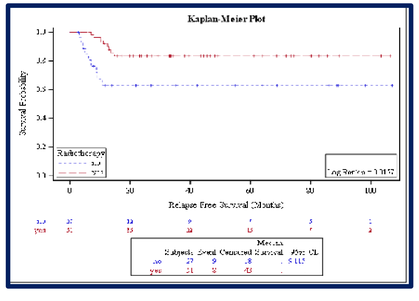


Figure (3) RFS in patients with bulky disease treated with combined modality vs chemotherapy only

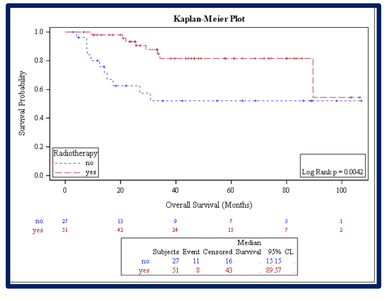


Figure (4) OS in patients with bulky disease treated with combined modality vs chemotherapy only

Conclusions

Tumour bulk of more than five centimetres in the longitudinal or axial dimensions on CT scan should be considered in treatment decisions of patients with early stage DLBCL including the use of consolidative radiotherapy. More studies are needed to define the best treatment approach in such patients.