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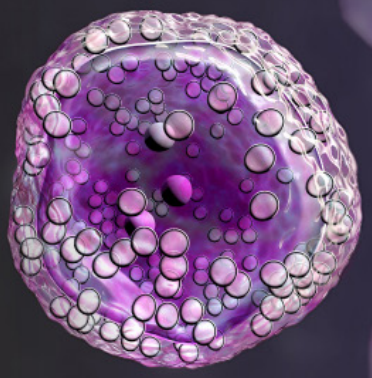
Fundamentals of Lugano



Lugano Classification became the main response criteria in 2014 for lymphoma, which is one of the most common hematologic malignancies. Lymphoma accounts for approximately 4% of cancer diagnoses in the US. Lymphoma is a cancer of lymphocyte (immune cells) and typically involves nodes, spleen, liver, and/or bone marrow. This disease has many subtypes with various factors to consider in response assessment, including medical imaging review.

What is Lugano Classification?

The Lugano Classification is a staging system for Non-Hodgkin's and Hodgkin's lymphoma that also includes a five-point scale for reporting response to treatment based on Fluorodeoxyglucose-Positron Emission Tomography/Computed Tomography (FDG-PET/CT). The Lugano criteria was further clarified by Dr. Bruce Cheson et al. in the PRoLoG Consensus Initiative in 2023.

How Does Lugano Differ from Other Response Criteria?

The Lugano Classification primarily differs from other response criteria by heavily relying on PET scans, particularly FDG-PET/CT, to assess lymphoma response, utilizing a 5-point scale to evaluate FDG uptake. Most other criteria primarily use CT scans with simpler, binary positive/negative assessments, making Lugano more sensitive in detecting metabolic changes associated with lymphoma treatment response.

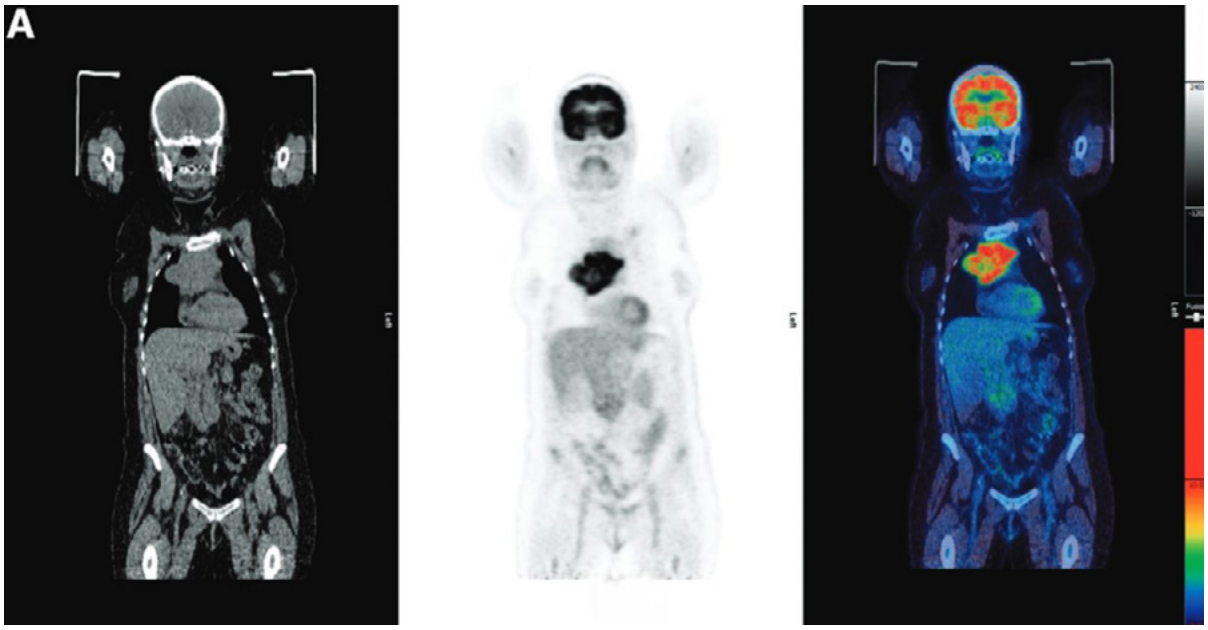


Image source: Barrington et al. 2014

What Imaging Modalities are used for Lugano Classification?

The primary imaging modalities used for assessing lymphoma staging and response are CT and FDG-PET/CT.

CT is used to assess anatomical features/parameters of lesions using:

- Unidimensional measurement
- Bidimensional measurement
- Qualitative assessment (present/absent)

FDG-PET/CT is used to assess functional parameters of lesions.

- PET imaging, through the detection of radiotracer uptake, quantifies the metabolic activity of lesions
- FDG is a radioactive glucose analogue tracer (acts like glucose)
- Aggressive lymphomas frequently exhibit increased glucose metabolism, resulting in avid FDG uptake that often exceeds liver uptake
- A decrease in FDG uptake within FDG-avid lymphomas correlates with a better prognosis. A standardized uptake value (SUV) lower than liver SUV after treatment indicates a complete metabolic response (CMR)
- Indolent lymphomas can exhibit variable or low FDG uptake. Assessment of response to therapy for indolent lymphomas primarily relies on anatomic imaging modalities like CT
- Lugano classification recommends using PET scan scaled to a fixed SUV and color table for evaluation

How MERIT Can Help

MERIT's readers have extensive Lugano knowledge & training, with experience in nearly 90 lymphoma clinical trials. Through innovative and proven technologies, alongside our intuitive, seamless workflows, MERIT's experienced staff bring more than a decade of clinical endpoint expertise, ensuring the success and integrity of your clinical trials. Connect with our oncology team to learn more about our solutions.

Barrington SF, Mikhaeel NG, Kostakoglu L, Meignan M, Hutchings M, Müeller SP, Schwartz LH, Zucca E, Fisher RI, Trotman J, Hoekstra OS, Hicks RJ, O'Doherty MJ, Hustinx R, Biggi A, Cheson BD. Role of imaging in the staging and response assessment of lymphoma: consensus of the International Conference on Malignant Lymphomas Imaging Working Group. J Clin Oncol. 2014 Sep 20;32(27):3048-58. doi: 10.1200/JCO.2013.53.5229. Erratum in: J Clin Oncol. 2016 Jul 20;34(21):2562. PMID: 25113771; PMCID: PMC5015423.

Application of the Lugano Classification for Initial Evaluation, Staging, and Response Assessment of Hodgkin and Non-Hodgkin Lymphoma: The PRoLoG Consensus Initiative (Part 1-Clinical) https://pubmed.ncbi.nlm.nih.gov/35835580/

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meritcro.com | E: oncology@meritcro.com | P: (608) 509-7122

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