

# ADVANCES IN LLM

Current Developments in the Management of Leukemia, Lymphoma, and Myeloma

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## Who Benefits From Surveillance Imaging in Lymphoma?



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**H&O** What is the current role of surveillance imaging in lymphoma?

**JA** Surveillance imaging in lymphoma patients is widely performed. Patients with lymphoma commonly undergo routine imaging studies after completing treatment. However, the benefit remains unclear. The guidelines for lymphoma follow-up are based on limited retrospective analyses and opinion. Since existing guidelines are vague and not evidence-based, practice patterns are quite varied.

**H&O** What are the theoretical benefits of imaging, and what do available data demonstrate?

**JA** The majority of surveillance approaches in lymphoma have focused on early detection of recurrence, with the hope of achieving prolonged survival and potential cure. Routine surveillance imaging offers the theoretical benefit of detecting asymptomatic relapse and early initiation of second-line therapy. The idea would be that if you spotted a relapse early, and if there were a potentially curative treatment available, you might be able to rescue patients who would not be able to be rescued at a later time. However, available data do not convincingly show a therapeutic advantage for routine imaging in patients with lymphoma. In fact, known concerns of imaging have led many to question its role in this setting.

It is still possible that in certain subgroups of high-risk patients for whom potentially curative salvage therapy is available, these images might improve survival. This warrants investigation in clinical trials.

**H&O** What are the potential risks associated with routine surveillance imaging in patients with lymphoma?

**JA** One of the main risks is exposure to radiation. The risks related to radiation exposure with routine follow-up imaging are often ignored. Unlike clinicians who are exposed to radiation, there are no monitoring requirements or exposure guidelines for patients. A growing body of literature shows that radiation exposure may increase the risk of malignancy. Not surprisingly, the lifetime cancer incidence associated with radiation exposure has been shown to be much higher in younger patients than in older patients. This is especially true for young women, because of the risk of inducing breast cancer. In order to better ascertain the risks associated with radiation exposure in patients with lymphoma undergoing surveillance imaging, longitudinal studies are needed.

**H&O** What are other areas of concern?

**JA** Routine surveillance scans exacerbate underlying anxiety symptoms and fear of recurrence in survivors of aggressive lymphoma. In a cross-sectional observational study published in the *Annals of Oncology* in 2010, Dr. John Leonard and colleagues assessed anxiety and the psychological impact of routine surveillance scans in 70 survivors of curable adult aggressive lymphoma. Despite representing a largely cured population, qualitative reports from patients noted fear of recurrence as a major concern and considerable anxiety around the time of a follow-up imaging scan. These follow-up scans are nagging reminders that one's health may dete-

riorate again, and this is not a trivial shortcoming if you are the patient receiving such scans.

Another area of concern is the cost of imaging. If you add up the cost of all surveillance images performed in all patients who achieve remission from lymphoma in the United States—almost all of which were in situations where there was little or no chance for benefit—it comes to hundreds of millions of dollars. This is not an insignificant contribution to health care costs, and the growing number of clinicians who own such scanners presents the issue of conflicts of interest in performing these studies.

### H&O What are some current areas of research?

**JA** It is still possible that surveillance imaging may help to improve survival in certain high-risk patients (ie, where the higher chance of relapse would increase the positive predictive value of an abnormal image) for whom potentially curative salvage therapy is available. Younger adults with high-risk diffuse large B-cell lymphoma (DLBCL) is one possible subgroup. In order to make an impact on clinical practice and decide whether to make surveillance imaging routine or decrease its use, clinical trials comparing routine follow-up using history, physical examination, and laboratory studies with the same evaluation plus surveillance imaging are needed. However, such studies are not exciting to many researchers, and would cost a lot of money to conduct. Furthermore, it is unclear who would fund such initiatives. Until such studies are performed, surveillance imaging for patients with lymphoma in remission should not be routinely performed.

### H&O What are the biggest remaining challenges?

**JA** Again, many physicians now own imaging machines. A lot of money is generated by performing these imaging scans, so there are often financial conflicts of interest. While

the practice of routine scanning is quite variable, there is no doubt that many unneeded scans are performed. We need to make patients and providers more aware of the potential downsides of excessive scanning in those with lymphoma who are clinically well. Expense, possible risks of unnecessary radiation exposure, additional testing and evaluations to pursue false-positive results, and the psychological stress on patients who have to deal with concerns about relapse are all very serious issues that must be considered.

### H&O What do you think the future holds?

**JA** It has become clear that lymphomas, such as DLBCL, are a variety of clinicopathologic syndromes that will require different treatment approaches. A better understanding of the biology of these entities will enable us to develop more specific and more effective therapies. In the meantime, we should focus on trying to optimize the use of currently available tools (eg, positron emission tomography scans, chemotherapeutic agents, radiotherapy) through clinical studies. Despite the aforementioned challenges, patients have gained a lot by the work done to date. I think that over time, surveillance imaging will be performed less frequently, at least until a study is done that shows us when we can improve the outcome for our patients by exposing them to the risks and the costs of routine imaging.

### Suggested Readings

Thompson CA, Charlson ME, Schenkein E, et al. Surveillance CT scans are a source of anxiety and fear of recurrence in long-term lymphoma survivors. *Ann Oncol*. 2010;21(11):2262-2266.

Armitage JO. My treatment approach to patients with diffuse large B-cell lymphoma. *Mayo Clin Proc*. 2012;87(2):161-171.

Armitage JO. Who benefits from surveillance imaging? *J Clin Oncol*. 2012;30(21):2579-2580.

Thompson CA, Maurer MJ, Ghesquieres H, et al. Utility of post-therapy surveillance scans in DLBCL [ASCO abstract 8504]. *J Clin Oncol*. 2013;31.