5 Minute JournalClub

POST-ASH Issue 3, 2014

Analysis of the National LymphoCare Study Evaluating Early Disease Progression in Patients with FL within 2 Years of R-CHOP

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CME INFORMATION

OVERVIEW OF ACTIVITY

Each year, thousands of clinicians, basic scientists and other industry professionals sojourn to major international oncology conferences, like the American Society of Hematology (ASH) annual meeting, to hone their skills, network with colleagues and learn about recent advances altering state-of-the-art management in hematologic oncology. As such, these events have become global stages where exciting science, cutting-edge concepts and practice-changing data emerge on a truly grand scale. This massive outpouring of information has enormous benefits for the hematologic oncology community, but the truth is it also creates a major challenge for practicing oncologists and hematologists.

Although original data are consistently being presented and published, the flood of information unveiled during a major academic conference is unprecedented and leaves in its wake an enormous volume of new knowledge that practicing oncologists must try to sift through, evaluate and consider applying. Unfortunately and quite commonly, time constraints and an inability to access these data sets leave many oncologists struggling to ensure that they're aware of crucial practice-altering findings. This creates an almost insurmountable obstacle for clinicians in community practice because they are not only confronted almost overnight with thousands of new presentations and data sets to consider but they are also severely restricted in their ability to review and interrogate the raw findings.

To bridge the gap between research and patient care, this CME activity will deliver a serial review of the most important emerging data sets on therapeutic options in the management of non-Hodgkin lymphomas from the latest ASH meeting, including expert perspectives on how these new evidence-based concepts may be applied to routine clinical care. This activity will assist medical oncologists, hematologists, hematology-oncology fellows and other healthcare professionals in the formulation of optimal clinical management strategies and the timely application of new research findings to best-practice patient care.

LEARNING OBJECTIVES

- Compare the efficacy of consolidation therapy with a single dose of ^{90}Y-ibritumomab tiuxetan to that of rituximab maintenance for patients with newly diagnosed follicular lymphoma (FL).
- Examine the utility of early disease progression within 2 years of R-CHOP therapy as a way to identify a subset of patients with FL who are at high risk of death.
- Assess the efficacy and safety of short-term versus long-term rituximab maintenance in FL.
- Evaluate the benefits and risks of brentuximab vedotin for newly diagnosed cutaneous T-cell lymphoma or relapsed or refractory B-cell lymphomas and the effect of CD30 expression on response to this agent.
- Appraise recent clinical findings on the use of front-line lenalidomide with rituximab in mantle-cell lymphoma and of single-agent crizotinib in advanced, chemoresistant ALK-positive non-Hodgkin lymphoma.

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Andrew M Evens, DO, MSc
Professor of Medicine
Chief, Division of Hematology/Oncology
Tufts Medical Center
Director, Lymphoma Program
Interim Director, Tufts Cancer Center
Boston, Massachusetts

Advisory Committee and Contracted Research: Celgene Corporation, Millennium: The Takeda Oncology Company, Seattle Genetics.

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Hardware/Software Requirements:
A high-speed Internet connection
A monitor set to 1280 x 1024 pixels or more
Internet Explorer 7 or later, Firefox 3.0 or later, Chrome, Safari 3.0 or later
Adobe Flash Player 10.2 plug-in or later
Adobe Acrobat Reader
(Optional) Sound card and speakers for audio

Last review date: February 2014
Expiration date: February 2015

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POST-ASH Issue 3, 2014

To go directly to slides and commentary for this issue, **click here**.

Andrew M Evens, DO, MSc

The rapid integration of novel systemic agents into the management of B- and T-cell lymphomas has the rapt attention of all medical oncologists who see these patients in their practices every day. In the *next* issue of this series we focus on chronic lymphocytic leukemia (CLL), as Dr Brad Kahl reviews the newly approved type II anti-CD20 monoclonal antibody obinutuzumab and 3 new and exciting small molecules, the Bruton tyrosine kinase inhibitor ibrutinib (now FDA endorsed for mantle-cell lymphoma [MCL] and CLL), the PI3 kinase delta inhibitor idelalisib and ABT-199, an anti-BCL2 pro-apoptotic agent.

Similarly, a future edition of the series will delve into ASH papers on Hodgkin lymphoma, where brentuximab vedotin (BV) continues to shake up traditional paradigms. But for this program we turned our full attention to non-Hodgkin lymphoma (NHL) and asked Dr Andrew Evens, principal investigator of one of the few ongoing major randomized US Cooperative Group NHL trials — **ECOG-E2408**, a 3-arm Phase II study evaluating bendamustine and rituximab (R) with or without bortezomib followed by R with or without lenalidomide — to provide his perspectives on a number of ASH data sets and what these mean to current practice and future research.

R^2 (rituximab/lenalidomide) up front in MCL

As has been observed in follicular lymphoma (FL), useful objective responses to this well-tolerated nonchemotherapy regimen are common, and perhaps not surprisingly, in **this Phase II study** 87% of patients with treatment-naïve MCL derived benefit from therapy. A major Phase III trial (**RELEVANCE**) compares R^2 to R-chemotherapy followed by R in previously untreated FL, and a number of studies, including Dr Evens', are evaluating the equally interesting concept of R^2 maintenance. However, the sudden and very welcome appearance of ibrutinib in MCL and the obvious logic of evaluating it up front has complicated current discussions regarding new trial designs. While R^2 involves 2 approved agents and is tempting to consider for older patients and those for whom chemotherapy may be problematic, most investigators, including Dr Evens, are currently conservative about attempting to use the regimen up front in patients with lymphoma, although it is a consideration with refractory disease.

Crizotinib in ALK-positive lymphomas, mainly anaplastic large cell lymphoma (ALCL)

ALK expression is present in more than 50% of patients with ALCL, and an intriguing 2011 *New England Journal* report revealed the impressive short-term therapeutic activity of crizotinib in 2 individuals with ALK-positive lymphoma. At ASH 2013 we saw **a small but stunning new series** in which all 9 patients with ALK-positive, refractory ALCL experienced complete responses (CRs) on crizotinib. In addition, 1 partial response was observed among 2 patients with ALK-positive diffuse large B-cell lymphoma (DLBCL) treated with the drug. This important development has Dr Evens and others scratching their heads about how to integrate crizotinib into current lymphoma practice and where it will fit in with the other fairly new kid on the block, BV, as part of new research initiatives.

Maintenance treatment for FL

A fascinating report from the Swiss group comparing R monotherapy followed by short-course (4 doses) or extended (5 years) R maintenance revealed that although the primary endpoint of event-free survival was not statistically different, an impressive prolongation of progression-free survival (PFS) was observed with longer treatment (3.5 years for patients on short maintenance versus 7.4 years with the long-term approach). These intriguing findings seem out of place given that the previously reported results of the ECOG RESORT trial were somewhat unimpressive, and because of this Dr Evens' personal standard for low-risk disease remains watchful waiting or at most 4 weeks of R with no maintenance. At ASH we also saw more follow-up from the classic **PRIMA trial** evaluating 2 years of R maintenance after R-chemotherapy in indolent lymphoma, and the 73-month follow-up continues to demonstrate a significant delay in disease progression.

A somewhat surprising Phase II report compared radioimmunotherapy (RIT) consolidation with ^{90}Y-ibritumomab tiuxetan to 2 years of R maintenance in patients with newly diagnosed FL responding to R-CHOP. At 3 years, a clear PFS advantage (77% versus 63%; $p = 0.044$) in favor of R maintenance was observed. Based in part on these data, Dr Evens believes that 2 years of R maintenance remains the standard, but he will still consider RIT consolidation in highly select situations in which a patient's life plans don't meld well with regular infusions.

Finally, **another report** from the now well-publicized National LymphoCare Study in FL provides some solid evidence to back up the collective impression that the approximately 20% of patients who experience relapse in the first 2 years after R-chemotherapy have a poor prognosis. In this analysis of 122 such patients who received R-CHOP up front with a median follow-up of 7 years, the 5-year overall survival rate was approximately 50%. When this is compared to the almost 100%

survival rate for those who did not relapse within 2 years, it seems clear that these individuals should be considered for clinical trials designed to find ways to reverse the rapid downhill trajectory in this situation.

BV in cutaneous lymphomas and NHL

Two fascinating papers at ASH reported on Phase II studies evaluating this always-exciting antibody-drug conjugate in several unique lymphoma subsets. **In cutaneous disease** (primarily mycosis fungoides) 34 of 48 patients obtained objective responses (71%), of which half (35%) were CRs, and in **the NHL study** 21 of 50 patients with DLBCL (42%) responded, including 16% CRs. What was intriguing and a bit confusing was that activity was observed across a broad range of CD30 expression, including in patients with low or undetectable CD30 expression by standard immunohistochemical staining. Dr Evens believes that while it is possible that BV has off-target antitumor effects, the more likely explanation is that current assays for CD30 are not detecting lower but clinically significant levels of antigen. While this is sorted out, oncologists in practice must consider that useful clinical responses have been seen with BV in patients with a variety of heavily pretreated lymphomas and that perhaps referral for trial participation should be explored for interested individuals regardless of CD30 positivity.

As stated previously, next we check in with Dr Brad Kahl about perhaps the most exciting area of new drug development in oncology — chronic lymphocytic leukemia.

Neil Love, MD
Research To Practice
Miami, Florida

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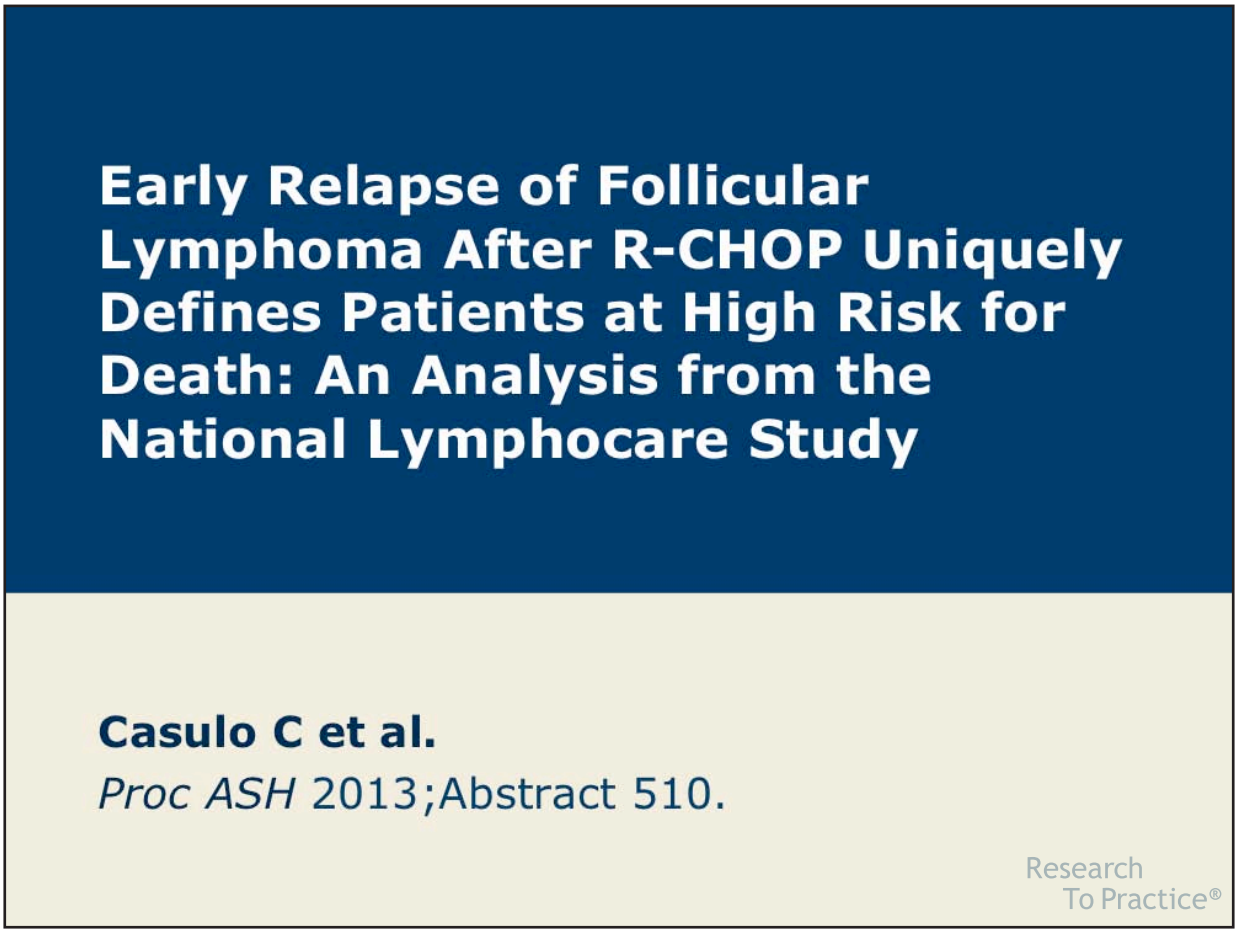
Analysis of the National LymphoCare Study Evaluating Early Disease Progression in Patients with FL within 2 Years of R-CHOP

Presentation discussed in this issue

Casulo C et al. **Early relapse of follicular lymphoma after R-CHOP uniquely defines patients at high risk for death: An analysis from the National Lymphocare Study.** *Proc ASH* 2013;**Abstract 510**.

Slides from a presentation at ASH 2013 and transcribed comments from a recent interview with Andrew M Evens, DO, MSc (2/12/14)



Background

- Despite gains in survival outcomes in follicular lymphoma (FL) with aggressive treatment strategies and maintenance rituximab, a subset of patients with FL demonstrates a consistent pattern of early relapse after treatment.
  - Approximately 20% of patients with FL will experience disease progression (PD) within 24 months of receiving chemoimmunotherapy (*JCO* 2013;31:314; *Lancet* 2013;381:1203).
  - This suggests that a group of patients at high risk will experience early relapse.
- **Study objective:** To determine whether PD within 2 years of R-CHOP therapy would define a subset of patients with FL who are at high risk of death.

Casulo C et al. *Proc ASH* 2013;Abstract 510.

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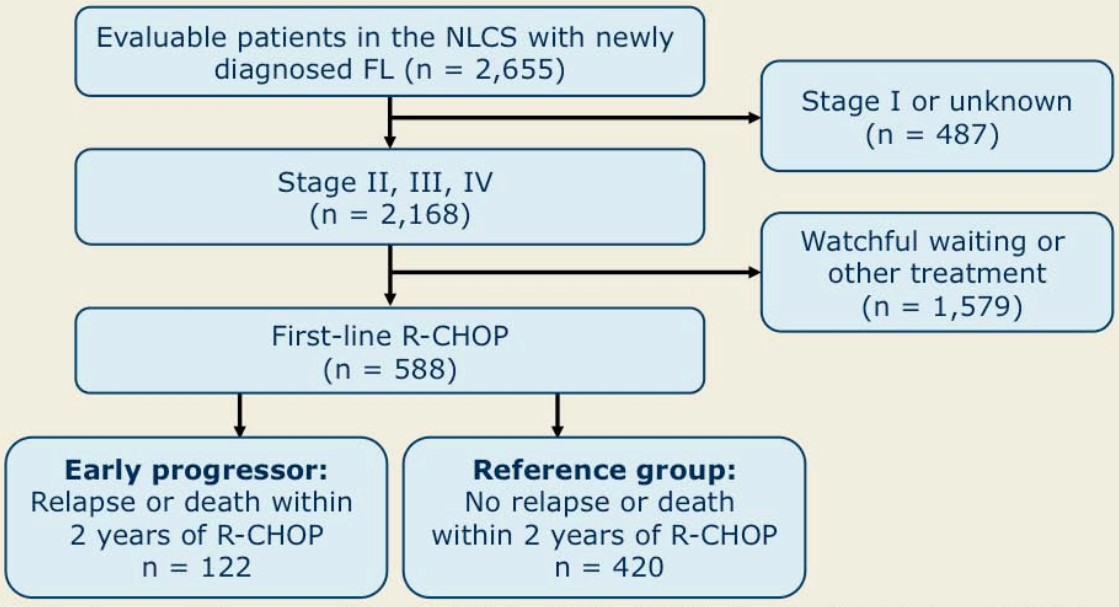
Observational National LymphoCare Study (NLCS) Design



- Patients were diagnosed from 2004 to 2007 at 265 sites in the US (n = 2,727)

Casulo C et al. *Proc ASH* 2013;Abstract 510.

NLCS: Baseline Characteristics by Group

Characteristic	Early progressors (n = 122)	Reference group (n = 420)	*p*-value*
Grade 3 FL	34%	40%	0.5
High-risk FLIPI	57%	40%	0.01
Elevated LDH	43%	28%	0.01
Low hemoglobin	35%	22%	0.01
≥2 nodal sites	40%	25%	0.01
Poor ECOG PS	16%	4%	<0.01

* X^2

FLIPI = Follicular Lymphoma International Prognostic Index; LDH = lactate dehydrogenase; ECOG PS = Eastern Cooperative Oncology Group performance status

Casulo C et al. *Proc ASH* 2013;Abstract 510.

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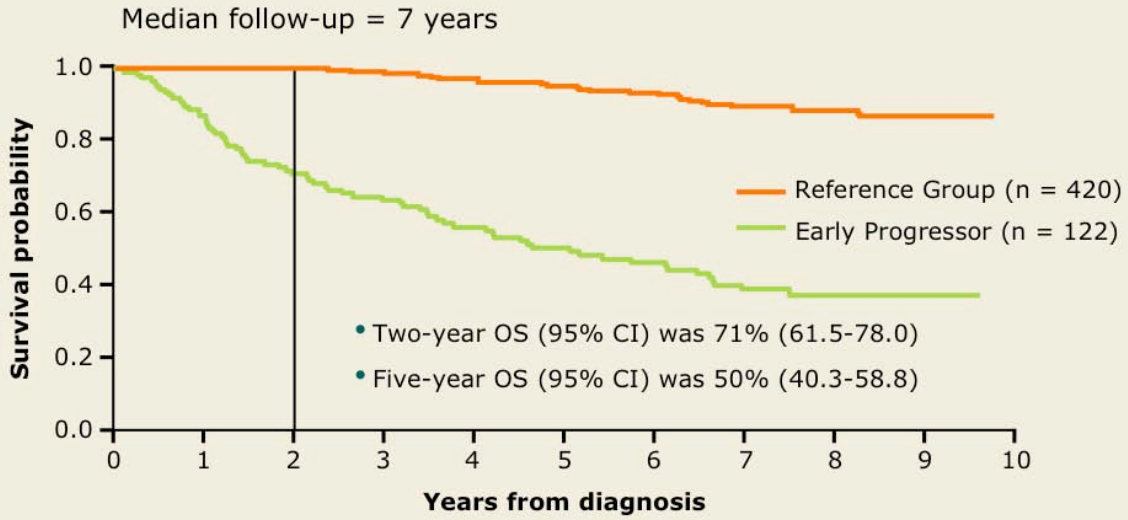
NLCS: Overall Survival (OS) in Relapsed FL within 2 Years of R-CHOP



- 122 patients were classified as early progressors
  - PD (n = 110) and non-PD death within 2 years (n = 12)

With permission from Casulo C et al. *Proc ASH* 2013;Abstract 510.

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NLCS: Outcomes

- After a median follow-up of 7 years:
  - Patients classified as early progressors: 21%
  - Patients in the reference group: 71%
  - Patients lost to follow-up: 8%
- After adjusting for baseline characteristics, early PD was dramatically associated with poor OS.
  - Hazard ratio (HR) = 13.3 (95% CI: 7.94-22.4)
- After adjusting for FLIPI score, early PD was associated with an increased risk of death.
  - HR = 15.4 (95% CI: 9.6-24.7)
- Logistic regression model analysis showed that high LDH, poor ECOG status, B symptoms and bone marrow involvement were significantly associated with early PD ($p < 0.05$).

Casulo C et al. *Proc ASH* 2013;Abstract 510.

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Replication/Validation Study

- The NLCS was replicated at the University of Iowa (UI)/ Mayo Clinic to validate the NLCS results.
  - UI/Mayo cohort of patients with FL (n = 103)
- All patients received first-line R-CHOP.
- Baseline characteristics of patients were well balanced across all groups except that more patients had Grade 3 FL in the UI/Mayo cohort compared to the NLCS (62% versus 38%, $p < 0.01$).

Casulo C et al. *Proc ASH* 2013;Abstract 510.

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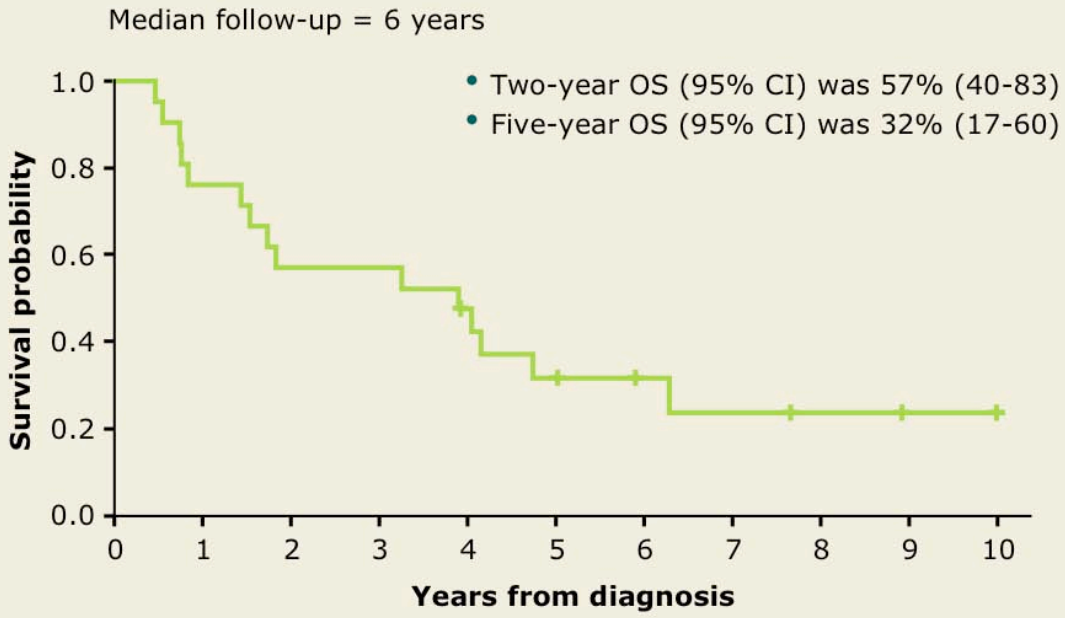
UI/Mayo: OS in Relapsed FL within 2 Years of R-CHOP



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UI/Mayo Validation Study Outcomes

- At a median follow-up of 6 years, a total of 21 patients (20%) had experienced early PD or death.
- Cox model analysis confirmed that patients with early PD after R-CHOP have an increased risk of death.
  - Unadjusted HR = 24.2 (95% CI: 8.6-67.8)
  - FLIPI adjusted HR = 22.6 (95% CI: 7.9-64.3)

Casulo C et al. *Proc ASH* 2013;Abstract 510.

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NLCS: Second-Line Treatments

Treatment	PD ≤2 years (n = 110)
None	12%
Rituximab monotherapy	26%
Chemotherapy +/- rituximab	38%
Investigational therapy	5%
Radiotherapy-containing regimens	6%
Radioimmunotherapy-containing regimens	6%
Other noninvestigational therapy	1%
Hematopoietic transplant-containing regimen	8%

Casulo C et al. *Proc ASH* 2013;Abstract 510.

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Author Conclusions

- PD within 2 years of R-CHOP uniquely defines a group of patients at a substantially greater risk of death.
  - The NLCS data set confirms that early PD occurs in 20% of patients with FL.
  - In this cohort of 588 patients with a median follow-up of 7 years, 61% (69/113) of deaths occurred in the group of patients classified as early progressors.
- This newly defined group of patients at high risk may represent a distinct population warranting further exploration in studies directed at understanding the biology and treatment of FL.

Casulo C et al. *Proc ASH* 2013;Abstract 510.

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Investigator Commentary: NLCS — A Study to Evaluate Early Disease Progression within 2 Years of R-CHOP in Patients with FL

The NLCS analysis was interesting, but the findings were not surprising. Patients who experience disease progression earlier than usual or earlier than what is expected have worse clinical outcomes. In today's world, the median PFS for patients with high-risk FL who receive R-CHOP and no maintenance therapy is 3 to 4 years. We see patients who experience disease progression within a year or two, and we think of such patients as having "bad follicular lymphoma." While this study demonstrated that FL does worsen, it also showed that the OS for these patients was significantly worse because half of the patients were dead in 5 years.

The situation is probably worse than expected. We assume that we can salvage all patients with FL and that everyone ends up with about the same survival rate. But clearly this group of patients, if they experienced disease progression within 2 years, had a significantly inferior survival. Intuitively we consider more aggressive therapy for these patients — they quickly start heading down the transplant avenue. At this point we need the next therapeutic step, and it is unclear whether we can change the natural history by treating more aggressively.

Interview with Andrew M Evens, DO, MSc, February 12, 2014

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