The Older Adult Living With Chronic Lymphocytic Leukemia: Implications for Oncology Providers, Patients, and Caregivers

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Abstract

Chronic lymphocytic leukemia (CLL) is a disease most common in older adults, with a median age at diagnosis of 71 years. Chronic lymphocytic leukemia is considered an incurable but highly treatable disease, and it is characterized by varied trajectories, tempos, and prognosis based on disease attributes as well as patient attributes and access to care. Most patients still die from their disease. Therefore, a tailored approach to evaluation and treatment incorporating oncogeriatric principles with consideration of the individual patient and caregiver wishes and goals of care will be necessary to maintain health-related quality of life (HRQOL). A focus on living, staying well, engaging in health self-management, and becoming a partner in care offers the best hope for improved outcomes. The advanced practitioner in oncology is in a unique role to facilitate the development of care partnerships, carefully screen patients to account for comorbidities and other effects of aging, and apply risk-adapted treatment and supportive care strategies based on oncogeriatric principles. Preparing the patient and their caregivers for anticipated adverse events and educating them on not only how to report them promptly, but also any strategies for self-management, will facilitate continuation of therapies that may offer better control of the disease and ultimately improved HRQOL. The goals of this article are to highlight key elements of CLL survivorship and to provide the advanced practitioner in oncology with knowledge and resources that might improve the lives of both the CLL patient and their caregivers.

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C hronic lymphocytic leukemia (CLL) is the most common leukemia in the western world, accounting for 30% of all leukemia cases. The number of new cases of CLL in 2017 is estimated to be 20,110, with a median age at diagnosis of 71 years (American Cancer Society, 2017). The 5-year overall survival (OS) rate in 2016 was 82.6%, increased from 67% in the period between 1975 to 1977 (Siegel, Miller, & Jemal, 2016). In younger patients (< 54 years), the 5-year OS rate is above 90% (Pulte et al., 2016); however, these younger patients, even with early-stage disease, will lose 6 to 7 years of life compared with age- and gender-matched individuals in the general population (Shvidel & Berrebi, 2016). Estimated 10-year survival rates for all age groups in the United States is 64.7% (Pulte et al., 2016). Despite these favorable survival rates, CLL is a heterogeneous disease and deaths due to the disease or other factors do occur. Among the 4,600 patients with CLL who died in 2017, most were 75 to 84 years of age. Patients with CLL are more likely to have other cancers when compared with the general population, which is thought to be a result of CLL immune dysregulation, genetic instability, age, and in some cases, treatment of the CLL (Tsimberidou et al., 2009).

Chronic lymphocytic leukemia is primarily a disease of older adults, in most cases in the seventh and eighth decade of life with variable life expectancy based on disease attributes, patient-specific attributes, and access to care. Today, CLL remains incurable but highly treatable for most patients. In fact, a subset of patients may never require disease-modifying treatment. Yet despite all current efforts to control the disease, others will succumb to their disease. The disease trajectory and tempo vary for individual patients. The variability in disease characteristics, therapeutic options, and outcomes creates a level of uncertainty for the patient and their caregivers living with CLL. The goals of this article are to highlight key elements of CLL survivorship and to provide the advanced practitioner (AP) in oncology with knowledge and resources that might improve the lives of both the patient with CLL and their caregivers. Given the older age of most patients with CLL, discussion of oncogeriatric assessment will be discussed.

FRAILTY

Frailty, a constellation of physiologic changes often related to aging, is estimated to be present in 25% of the population over the age of 85 (Clegg, Young, Iliffe, Rikkert, & Rockwood, 2013). However, chronologic age alone does not define frailty, as the remaining 75% of 85-year-olds do not meet the criteria for frailty and many younger patients may (Clegg et al., 2013). However, frailty is associated with hospitalization and death. Frailty is a dynamic process, although for the majority of elderly frail adults, there is a steady decline in physical functioning such as loss of mobility, unexplained weight loss, cognitive impairment, poor endurance, and decline in postural systems (vision, balance, and strength) that increase the potential for falls or other injury (Clegg et al., 2013). Frailty is a leading cause of morbidity and mortality in the older adult population and is associated with limited options for treatment (Baitar et al., 2014).

COMPREHENSIVE GERIATRIC ASSESSMENT AS A TOOL TO DETECT VULNERABILITIES

In a systematic review of the literature, Hamaker, Prins, & Stauder (2014) emphasized the importance of comprehensive geriatric assessment processes and tools to adequately estimate risk in older adults with hematologic malignancies. Among the 15 studies included in the review, the median age of patients was 73 years (range 58 to 86 years). Despite the fact that the estimated performance status was good, the authors noted the number and severity of geriatric impairments to be high, and the presence of these impairments was associated with inferior survival in a subset of the studies (Hamaker et al., 2014). The most commonly reported impairments in these studies included objectively measured physical capacity (100%), cognitive capacities (83%), nutritional status (67%), and instrumental activities (55%; Hamaker et al., 2014). In a multivariate analysis, age and performance status lost their predictive value in most studies, whereas physical capacity (75%), nutritional status (67%), and comorbidities (50%) retained their significance (Hamaker et al., 2014). The authors concluded that a comprehensive geriatric assessment is critical for older pa-

tients with hematologic malignancies to evaluate adequately health issues and vulnerabilities.

COMORBIDITIES AND GERIATRIC RISK ASSESSMENT

As with any disease, the presence of comorbidities, particularly when poorly controlled, carries prognostic significance. Given the median age at diagnosis, it is no surprise that comorbidities in the CLL population are common. However, the overall health of each patient with CLL, regardless of chronological age, will vary. Therefore, risk assessment must include not only clinical staging and evaluation of disease-specific prognostic biomarkers such as 17p deletion and *TP53* mutation, but a multidimensional comprehensive geriatric assessment to effectively identify age-related health problems that might remain undetected by standard oncologic workup (Stauder et al., 2016).

The International Society of Geriatric Oncology (SIOG) convened a task force to look specifically at older adults with CLL. Based on a systematic review of the literature, the SIOG suggested the inclusion of clinical staging, prognostic biomarkers, life expectancy, comorbidity assessment, and geriatric assessment (physical capacity, nutritional status, cognitive capacity, ability to perform activities of daily living, and social support) in guiding treatment decision-making (Stauder et al., 2016; Table 1).

Multidimensional geriatric assessment (GA) was included in the CLL9 trial of the German CLL study group, a phase III trial to investigate low-dose fludarabine with or without darbepoetin alfa in older patients with previously untreated or treated CLL and comorbidity (Goede et al., 2016a). The median age in the 97 patients recruited was 74 years. The tools used to assess fitness vs. frailty and feasibility of treatment included (1) the Cumulative Illness Rating Scale (CIRS); (2) the Timed-Up-and-Go (TUG) test; (3) the Dementia detection (DemTect) test; and (4) the Instrumental Activities of Daily Living (IADL) index (Goede et al., 2016b). In this analysis of 97 CLL patients over the age of 75 years, there was little correlation between CIRS, TUG, DemTect, or IADL results and treatment toxicity, feasibility, or efficacy. However, underperformance in TUG or the DemTect test

was strongly associated with poor survival (Goede et al., 2016b). The average CIRS score in the CLL9 study group was 5 (Goede et al., 2016a). The most common comorbidities included renal (83%, n = 62), hypertension (63%, n = 47), cardiac (40%, n = 30), vascular (36%, n = 27), respiratory (25%, n = 19), metabolic and endocrine (36%; n = 27), musculoskeletal (25%; n = 19), neurologic (19%; n = 14), and psychiatric (15%; n = 11). Importantly, this is the only phase III trial completed to date that specifically focuses on older patients with CLL (Rai & Jain, 2016).

A study by the same group evaluating 555 patients with CLL enrolled in one of two clinical trials (NCT00276848 and NCT00262795) and categorized by the number of comorbidities (< 2 comorbidities or ≥ 2 comorbidities) showed OS and progression-free survival (PFS) in the group with ≥ 2 comorbidities was inferior to the OS and PFS in the group with < 2 comorbidities (71.7 vs. 90.2 months, $p < .001$, and 21.0 vs. 31.5 months, $p < 0.01$; Goede et al., 2014). The most common comorbidities were metabolic/endocrine disorders (26%, n = 145), vascular disease (21%, n = 118), and cardiac disease (12%, n = 65; Goede et al., 2014). After adjustment for other prognostic factors and treatment toxicity, comorbidity maintained its independent prognostic value in a Cox regression analysis. Importantly, CLL was the major cause of death in patients with ≥ 2 comorbidities when compared with those with < 2 comorbidities (9% vs. 3% at 1 year and 25% vs. 15% at 5 years). When applying these data to the general population, it is imperative to understand the inclusion and exclusion criteria for each trial. The majority of trials exclude patients with more severe comorbidities. Therefore, risk-adapted treatment selection incorporating GA and comorbidity analysis and not merely focused on chronological age is critical to selecting treatments that effectively treat the underlying CLL while mitigating toxicity (Table 2).

SECOND CANCERS AND CLL

Among 2,028 patients with CLL seen between 1985 and 2005 at The University of Texas MD Anderson Cancer Center (MDACC), 625 cancers were observed in 551 patients, reflecting a risk of a second cancer 2.2 times higher than the expected risk (Tsimberidou et al., 2009). The most

Table 1. Multidimensional Geriatric Assessment

Assessment tool and reference	Focus	Description
Charlson Comorbidity Index (CCI) (Charlson et al., 1987)	Comorbidity	• The CCI derives a total score based on the presence (0 = absent; 1 = present) and severity (1 = not ill; 5 = moribund) of 30 comorbid diseases • It has been used to predict mortality risk in a variety of medical conditions • It has been specifically adapted to evaluate patients with hematologic malignancies being considered for stem cell transplantation[a]

Cumulative Illness Rating Scale for Geriatrics (CIRS-G) (Extermann et al., 1998; Linn et al., 1968; Miller et al., 1992; Salvi et al., 2008)	Comorbidity	• Scoring of each comorbidity using a 4-point scale
		• Scores are then totaled to generate a total score ranging from 0–56 for 14 organ systems
		  » 0: No problem
		  » 1: Current mild problem or past significant problem
		  » 2: Moderate disability or morbidity/requires "first-line" therapy
		  » 3: Severe/constant significant disability/"uncontrollable" chronic problems
		  » 4: Extremely severe/immediate treatment required/end-organ failure/severe impairment in function

Timed-Up-and-Go (TUG) test (Podsiadlo & Richardson, 1991)	Mobility	• Assessment of physical strength/mobility and risk of falls • The individual is asked to stand from a sitting position, walk three meters, turn and return to the chair in a sitting position • Limited training and equipment are required, and the test is therefore convenient in clinical settings • Normal TUG time is reportedly from 5.4 s to 40.8 s, mean 15s (SD 6.5)[b]
Dementia detection (DemTect) test (Kalbe et al., 2004)	Cognitive	• Includes four elements: recall of list of words; transformation of numerals; contextual thinking; numerical order • Items generate a composite score for individuals < 60 years or ≥ 60 years
Mini-Mental Status Exam (MMSE) (Folstein et al., 1975)	Cognitive	• 11-question measure that tests 5 areas of cognitive function: orientation, registration, attention and calculation, recall, and language • The maximum score is 30 • A score of 23 or lower is indicative of cognitive impairment • The MMSE takes only 5–10 minutes to administer and is therefore practical to use repeatedly and routinely
Instrumental Activities of Daily Living (IADL) index	Functional status	• Ability to use the telephone • Shopping • Food preparation • House keeping • Laundry • Mode of transportation • Responsibility for medications • Ability to handle finances

Note. SD = standard deviation.
[a]Elsawy & Sorror (2016); Sorror et al. (2005).
[b]Newton (1997)

common cancers included skin (30%), prostate (13%), breast (9%), melanoma (8%), lymphoma (8%), gastrointestinal (9%), lung (6%), and other cancers (17%; Tsimberidou et al., 2009). Older age, male sex, and elevated levels of beta2-microglobulin, lactate dehydrogenase, and creatinine were associated with a higher risk of second cancers. Among the 351 patients receiving CLL/small lymphocytic lymphoma treatment in this study, the treatment regimen did not affect the risk of subsequent cancer (*p* = .49). In this study, patients with 17p deletion, 6q deletion, or 11q deletion and/or trisomy 12 were at a marginally increased risk of developing other cancers (*p* = .07). A more recent analysis conducted at MDACC evaluating the incidence of other cancers in 797 long-term survivors (> 10 years) of CLL with or without treatment, found older age, male gender, and lower platelet counts to be independently associated with other cancers (Falchi et al., 2016).

Table 2. Guidelines for Determining Fitness for Treatment for Older Adults (age > 65–70) With Chronic Lymphocytic Leukemia

Robust/fit: go-go	Vulnerable/unfit: slow-go	Terminally ill/frail: no-go
• CIRS–G ≤ 6 and preserved creatinine clearance (i.e., glomerular filtration rate ≥ 70 mL/min, Cockcroft-Gault formula)	• CIRS-G score > 6 (but without individual organ impairment score of 4) or CrCl between 30 and 69 mL/min based on CLL11 • Consider geriatric impairments including IADLs, physical capacity, nutritional status, cognitive capacity	• Age-adjusted life expectancy < 3 mo • CrCl < 30 • Multimorbidity (CIRS > 6 with individual organ impairment score of 4)
• Consider for intensive therapy	• Unsuitable for intensive therapy • Consider for adapted therapy	• Unsuitable for antileukemic therapy • Consider for best supportive care

Note. CIRS-G = Cumulative Illness Rating Scale for Geriatrics; CrCl = creatinine clearance; IADLs = instrumental activities of daily living. Information from Cramer, Eichhorst, Reinhardt, & Hallek (2016); Eichhorst, Hallek, & Goede (2016); Merli, Mammi, & Ilariucci (2015); Rai (2015); Stauder et al. (2016).

Secondary leukemia (n = 15) was only found in patients receiving disease-modifying treatment. In this study, patients with other cancers had inferior overall survival rates (median 16.2 years) when compared with those without other cancers (median 22.9 years). For those patients where the cause of death was known (n = 81), the majority died from the other cancer (49%, n = 40), as opposed to progression of CLL (16%, n = 13; Falchi et al., 2016).

Benjamini et al. (2015), evaluated 234 patients receiving fludarabine, cyclophosphamide, and rituximab (FCR)-based regimens in the front-line setting between January 2004 and March 2012 at MDACC and found the risk of second cancers to be 2.38 times higher than the expected risk in the general population. Sixty-eight percent of these patients (n = 159) had other cancers either prior to (40%, n = 93) or after (28%, n = 66) receiving front-line FCR-based therapies. The incidence of treatment-related myelodysplastic syndromes (tMDS) or acute myeloid leukemia (tAML) was 5.1% (n = 12). The median time to diagnosis of tMDS or tAML was 2.7 years (range 1.1 to 7.8 years; Benjamini et al., 2015).

Analysis of 2,352,047 patients with preexisting CLL and other cancers registered in the Surveillance, Epidemiology, and End Results (SEER) database between 1990 and 2007 showed inferior overall survival after adjusting for age, sex, race, and disease stage: breast (n = 579,164; hazard ratio [HR], 1.70; *p* < .001), colorectal (n = 412,366; HR, 1.65; *p* < .001), prostate (n = 631,616; HR, 1.92; *p* < .001), lung (n = 489,053; HR, 1.19; *p* < .001), and kidney (n = 95,795; HR, 1.54; *p* < .001; Solomon et al.,

2013). The exceptions to this finding included patients with pancreatic cancer (n = 82,116; HR, 0.97; *p* = .78), and ovarian cancer (n = 61,937; HR, 1.04; *p* = .81; Solomon et al., 2013). Invasive melanoma and nonmelanoma skin cancers, including rare types such as Merkel cell carcinoma, malignant fibrous histiocytoma, dermatofibrosarcoma protuberans, Kaposi sarcoma, sebaceous carcinoma, and others have been reported as the other most common cancers in patients with CLL (Brewer et al., 2015).

These data have clear implications for patients with CLL and the AP in oncology. Standard guidelines for cancer surveillance are not adequate and collaboration between the oncology provider, the primary care provider, and relevant specialists is imperative. All CLL survivors should have a yearly skin exam by a dermatologist familiar with atypical or rare skin disorders. Those patients who have received disease-modifying treatment, particularly fludarabine or alkylator-based regimens, require surveillance for tMDS and tAML.

HEALTH-RELATED QUALITY OF LIFE

Given the older age of most patients will CLL and the frequency of comorbid conditions, integrating discussion about health-related quality of life (HRQOL) into treatment planning is essential. The average life expectancy for a 65-year-old in the United States today is estimated to be 17.66 years for males and 20.22 years for females. For individuals of 75 years of age, average life expectancy remains greater than 10 years (10.94 for males and 12.76 for females; National Center for Health Statistics, 2015).

Considering that most patients will die of their disease, weighing the risks and benefits of treatment, utilizing a risk-adapted approach to treatment selection, and considering life expectancy may serve to mitigate unnecessary adverse events and potentially maintain or improve quality of life. In patients with CLL, HRQOL is most often associated with disease-related symptoms regardless of disease-related signs (i.e., spleen, liver, or lymph node enlargement, or lymphocytosis; de Wreede et al., 2014). Treatment- or disease-related adverse events may initially make HRQOL worse until disease control is achieved.

A study sponsored by the Lymphoma Research Foundation (LRF) randomized 777 patients with CLL to receive chlorambucil or fludarabine, alone or with cyclophosphamide (FC). Health-related quality of life was evaluated at baseline, then 3, 6, and 12 months after the start of treatment, and then annually until 5 years. Three months after starting treatment, clear differences were noted in role functioning, social functioning, and fatigue between the patients receiving FC (48%/54%/60%), vs. those receiving fludarabine alone (41%/46%/56%) or chlorambucil alone (29%/31%/40%). Additionally, these scores were ≥ 10 points worse than baseline (de Wreede et al., 2014). In subsequent follow-up, patients with sustained remission or disease control demonstrated long-term HRQOL, in most cases like those reported in general population studies. On the other hand, patients with uncontrolled disease had mean scores up to 22 points worse, despite subsequent treatments. These data offer support for the use of primary treatment regimens likely to achieve and sustain remission in otherwise medically fit patients of all ages, including those aged > 70 (de Wreede et al., 2014). Informed consent, however, is necessary to adequately prepare the patient and their caregivers for the anticipated changes, whether temporary or sustained, in HRQOL. Given the number of newer agents currently approved for the treatment of CLL, it will be necessary to include HRQOL measures in each of these trials to understand the impact on disease control and quality of life.

CAREGIVERS AS PARTNERS IN CARE

Caregivers, including partners/spouses, other family members, and friends, are expected to assume a primary role in effective management of the disease and support of the patient, with little or no formal training (Kurtin, Lilleby, & Spong, 2013; van Ryn et al., 2011). The ability to monitor and report symptoms is expected. Yet we do not provide the patient or their caregivers with tools that clearly define the symptoms that we expect them to monitor, document, and act on. The burden of caregiving is associated with physical and psychological distress in patients and caregivers (Beattie & Lebel, 2011; Braamse et al., 2014; Fujinami et al., 2015; Northouse, Katapodi, Schafenacker, & Weiss, 2012; Oechsle, Goerth, Bokemeyer, & Mehnert, 2013; Thomas, Hudson, Trauer, Remedios, & Clarke, 2014; Thomas, 1998). A sense of mastery in managing the disease, maintaining a household, and continuing health maintenance activities is associated with improved self-efficacy (Bandura, 1977; Hoffman, 2013; Lev, 1997; Lorig, Laurent, Plant, Krishnan, & Ritter, 2014; Ugalde, Krishnasamy, & Schofield, 2014). Strategies to support patients and caregivers living with CLL may empower the patient and caregiver to engage in and master health, illness, and life self-management.

Communicative or interactive literacy refers to advanced skills that allow a person to extract information, derive meaning from different sources of communication, and apply new information to changing circumstances (Heijmans, Waverijn, Rademakers, van der Vaart, & Rijken, 2015). Given the expectations for oncology caregivers today, we must move beyond a focus on readability alone. In addition, given the shift toward digital information, health-enabling technologies provide an innovative strategy to meet the needs of an expanding older adult cancer population, yet, research to date suggests limitation to eHealth technologies for self-management in the older adult. The importance of guiding the patient and their caregivers to vetted resources tailored to their needs cannot be underestimated. There are several resources specific to patients, caregivers and health care professionals that are tailored to supporting individuals living with a diagnosis of CLL (Table 3).

CONCLUSIONS

Older adults with cancer and their caregivers will pose a major challenge to the health-care

Table 3. Resources for the Patient and Caregivers Living With Chronic Lymphocytic Leukemia

Agency/resource	Website	Description
American Society of Clinical Oncology	cancer.net/survivorship cancer.net/coping-with-cancer/caring-loved-one/being-caregiver	Information for cancer survivors and their friends and family. Online resources focused on survivorship, late effects, follow-up care, screening for second malignancies, and healthy living
American Cancer Society	cancer.org/cancer/chronic-lymphocytic-leukemia.html cancer.org/treatment/caregivers.html	Resources for research, sharing expert information, supporting patients, and spreading the word about prevention
Cancer*Care*	cancercare.org/diagnosis/chronic_lymphocytic_leukemia	Support services for people affected by CLL, as well as CLL treatment information and additional resources, including counseling, support groups, education, financial assistance, and community programs
Cancer Financial Assistance Coalition	cancerfac.org	Coalition of financial assistance organizations joining forces to help cancer patients experience better health and well-being by limiting financial challenges; site links the survivor to resources within member organizations
CLL Society	cllsociety.org cllsociety.org/?s=caregiver	Patient-centric, physician-curated nonprofit focused on patient education and patient support
LIVESTRONG	livestrong.org	Focuses on survivorship across cancer diagnoses, providing direct services to anyone affected by cancer, connecting people and communities with the services they need, and facilitating research, policy, and advocacy initiatives
National Coalition for Cancer Survivorship	canceradvocacy.org canceradvocacy.org/resources/cancer-survival-toolbox/living-with-chronic-lymphocytic-leukemia/	Advocates for quality cancer care for all people touched by cancer; resources include the Cancer Survival Toolbox
National Cancer Survivorship Resource Center	cancer.org/survivorshipcenter canceradvocacy.org/resources/tools-for-care-providers	Collaboration between the American Cancer Society and the George Washington University Cancer Institute funded by a 5-year cooperative agreement from the Centers for Disease Control and Prevention; goal is to shape the future of cancer survivorship care and improve the quality of life of cancer survivors as they transition from treatment to recovery
National Cancer Institute: Office of Cancer Survivorship	cancercontrol.cancer.gov/ocs	Supports research that both examines and addresses the long- and short-term physical, psychological, social, and economic effects of cancer and its treatment among pediatric and adult survivors of cancer and their families

Note. CLL = chronic lymphocytic leukemia.

system in the next decade. Patient and caregiver involvement in health and illness self-management is implied. The diagnosis of an incurable malignancy, such as CLL, is a life-changing event. Although there is great hope with improved understanding of the disease biology, new opportunities to exploit vulnerabilities in the disease pathways and targets, and improved strategies for supportive care, most patients with CLL are over the age of 70. A tailored approach to evaluation and treatment incorporating oncogeriatric principles with consideration of the individual

patient and caregiver wishes and goals of care will be necessary to maintain HRQOL. Clinical trials with more intuitive designs and early analysis to allow for crossover when one arm of the trial has clear benefits compared with the other arm(s), and trials that are specifically designed for the older adult will be necessary to extend the benefit of newer agents to the older population. A focus on living, staying well, engaging in health self-management, and becoming a partner in care, offer the best hope for improved outcomes. The AP in oncology is in a unique role to

Table 3. Resources for the Patient and Caregivers Living With Chronic Lymphocytic Leukemia (cont.)

Agency/resource	Website	Description
OncoLink	oncolink.org/search/?query=CLL	Up-to-date cancer information, free of charge, to support patients, caregivers, and practitioners through education
Pharmaceutical resources	bendeka.com/Support/resources	Bendamustine
	imbruvica.com/you-i-support	Ibrutinib
	zydelig.com/index.aspx	Idelalisib
	gazyva.com/financial-resources/support-from-genentech	Obinutuzumab
	us.arzerra.com	Ofatumumab
	rituxan.com/hem/patient/resources	Rituximab
	venclextahcp.com/venclexta-patient-and-financial-support.html	Venetoclax
US Preventive Services Task Force	uspreventiveservicestaskforce.org/Page/Name/tools-and-resources-for-better-preventive-care	Evaluates the benefits of individual services based on age, gender, and risk factors for disease; makes recommendations about which preventive services should be incorporated routinely into primary medical care and for which populations; and identifies a research agenda for clinical preventive care; recommendations issued by the USPSTF are intended for use in the primary care setting

Note. CLL = chronic lymphocytic leukemia.

facilitate development of care partnerships, carefully screen patients to account for comorbidities and other effects of aging, and apply risk-adapted treatment and supportive care strategies based on oncogeriatric principles. Preparing the patient and their caregivers for anticipated adverse events and educating them on how to not only report them promptly, but also any strategies for self-management, will facilitate continuation of therapies that may offer better control of the disease and ultimately improved HRQOL. ●

Disclosure

Ms. Kurtin has served as a consultant for AbbVie, Celgene, Genentech, and Pharmacyclics.

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