Year in Review: Clinical Investigator Perspectives on the Most Relevant New Data Sets and Advances in Oncology

Chronic Lymphocytic Leukemia

Thursday, January 5, 2023 5:00 PM - 6:00 PM ET

Faculty

Jennifer R Brown, MD, PhD Deborah Stephens, DO



Faculty



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CLL Center Director and Institute Physician
Dana-Farber Cancer Institute
Worthington and Margaret Collette Professor of
Medicine in the Field of Hematologic Oncology
Harvard Medical School
Boston, Massachusetts

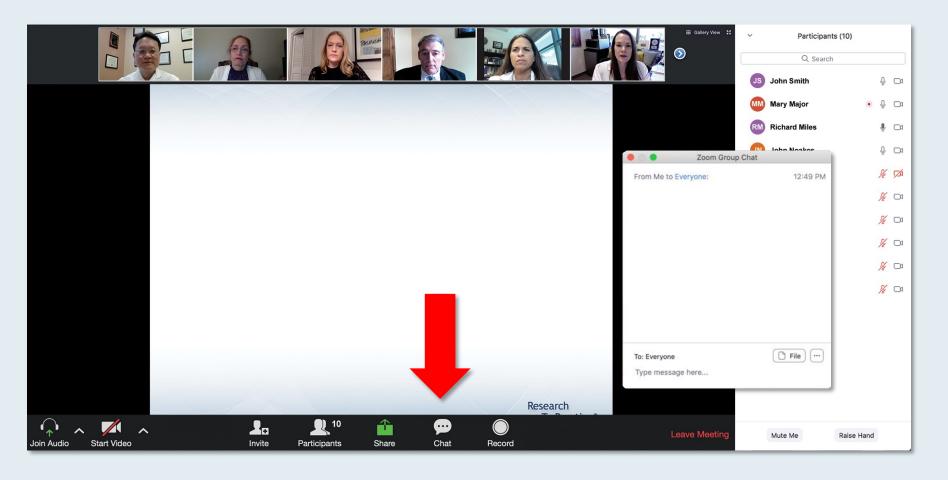


MODERATOR
Neil Love, MD
Research To Practice
Miami, Florida



Deborah Stephens, DO
Associate Professor
Director, CLL and Lymphoma Program
Huntsman Cancer Institute at University of Utah
Salt Lake City, Utah

We Encourage Clinicians in Practice to Submit Questions



Feel free to submit questions now before the program begins and throughout the program.



Clinicians in the Audience, Please Complete the Pre- and Postmeeting Surveys







ONCOLOGY TODAY

WITH DR NEIL LOVE

Recent Advances in the Treatment of Chronic Lymphocytic Leukemia

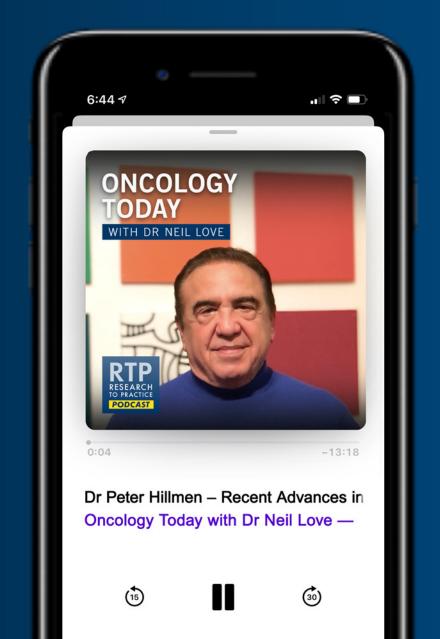


DR PETER HILLMEN
UNIVERSITY OF LEEDS









Year in Review: Clinical Investigator Perspectives on the Most Relevant New Data Sets and Advances in Oncology

A Multitumor CME/MOC-Accredited Live Webinar Series

Multiple Myeloma

Tuesday, January 10, 2023 5:00 PM - 6:00 PM ET

Faculty

Joseph Mikhael, MD, MEd Ajay K Nooka, MD, MPH



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Targeted Therapy for Non-Small Cell Lung Cancer

Wednesday, January 11, 2023 5:00 PM - 6:00 PM ET

Faculty

Zofia Piotrowska, MD, MHS Gregory J Riely, MD



Cases from the Community: Investigators Discuss Available Research Guiding the Care of Patients with Colorectal Cancer

Part 1 of a 3-Part CME Symposium Series Held in Conjunction with the 2023 ASCO Gastrointestinal Cancers Symposium

Wednesday, January 18, 2023

7:15 PM - 9:15 PM PT (10:15 PM - 12:15 AM ET)

Faculty

Tanios Bekaii-Saab, MD Scott Kopetz, MD, PhD John Strickler, MD Eric Van Cutsem, MD, PhD

Moderator Kristen K Ciombor, MD, MSCI



Cases from the Community: Investigators Discuss Available Research Guiding the Care of Patients with Gastroesophageal Cancers

Part 2 of a 3-Part CME Symposium Series Held in Conjunction with the 2023 ASCO Gastrointestinal Cancers Symposium

Thursday, January 19, 2023 6:15 PM – 7:45 PM PT (9:15 PM – 10:45 PM ET)

Faculty

Yelena Y Janjigian, MD Florian Lordick, MD, PhD Zev Wainberg, MD, MSc

Moderator Samuel J Klempner, MD



Cases from the Community: Investigators Discuss Available Research Guiding the Care of Patients with Hepatobiliary Cancers

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Friday, January 20, 2023 6:00 PM - 7:30 PM PT (9:00 PM - 10:30 PM ET)

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Richard S Finn, MD Lipika Goyal, MD, MPhil **Professor Arndt Vogel, MD**

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Dr Love — **Disclosures**

Dr Love is president and CEO of Research To Practice. Research To Practice receives funds in the form of educational grants to develop CME activities from the following companies: AbbVie Inc, Adaptive Biotechnologies Corporation, ADC Therapeutics, Agios Pharmaceuticals Inc, Alexion Pharmaceuticals, Amgen Inc, Array BioPharma Inc, a subsidiary of Pfizer Inc, Astellas, AstraZeneca Pharmaceuticals LP, Aveo Pharmaceuticals, Bayer HealthCare Pharmaceuticals, BeiGene Ltd, BeyondSpring Pharmaceuticals Inc, Blueprint Medicines, Boehringer Ingelheim Pharmaceuticals Inc, Bristol-Myers Squibb Company, Celgene Corporation, Clovis Oncology, Coherus BioSciences, CTI BioPharma Corp, Daiichi Sankyo Inc, Eisai Inc, Elevation Oncology Inc, EMD Serono Inc, Epizyme Inc, Exact Sciences Corporation, Exelixis Inc, Five Prime Therapeutics Inc, Foundation Medicine, G1 Therapeutics Inc, Genentech, a member of the Roche Group, Genmab, Gilead Sciences Inc, Grail Inc, GSK, Halozyme Inc, Helsinn Healthcare SA, ImmunoGen Inc, Incyte Corporation, Ipsen Biopharmaceuticals Inc, Janssen Biotech Inc, administered by Janssen Scientific Affairs LLC, Jazz Pharmaceuticals Inc, Karyopharm Therapeutics, Kite, A Gilead Company, Kronos Bio Inc, Lilly, Loxo Oncology Inc, a wholly owned subsidiary of Eli Lilly & Company, MEI Pharma Inc, Merck, Mersana Therapeutics Inc, Mirati Therapeutics Inc, Natera Inc, Novartis, Novartis Pharmaceuticals Corporation on behalf of Advanced Accelerator Applications, Novocure Inc, Oncopeptides, Pfizer Inc, Pharmacyclics LLC, an AbbVie Company, Puma Biotechnology Inc, Regeneron Pharmaceuticals Inc, Sanofi, Seagen Inc, Servier Pharmaceuticals LLC, SpringWorks Therapeutics Inc, Sumitomo Dainippon Pharma Oncology Inc, Taiho Oncology Inc, Takeda Pharmaceuticals USA Inc, TerSera Therapeutics LLC, Tesaro, A GSK Company, TG Therapeutics Inc, Turning Point Therapeutics Inc, Verastem Inc, and Zymeworks Inc.

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Planners, scientific staff and independent reviewers for Research To Practice have no relevant conflicts of interest to disclose.



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MODULE 6: Questions about treatment-related toxicity

MODULE 7: ASH 2022 – Promising investigational agents and strategies



Thank you for joining us!

CME and MOC credit information will be emailed to each participant within 5 business days.



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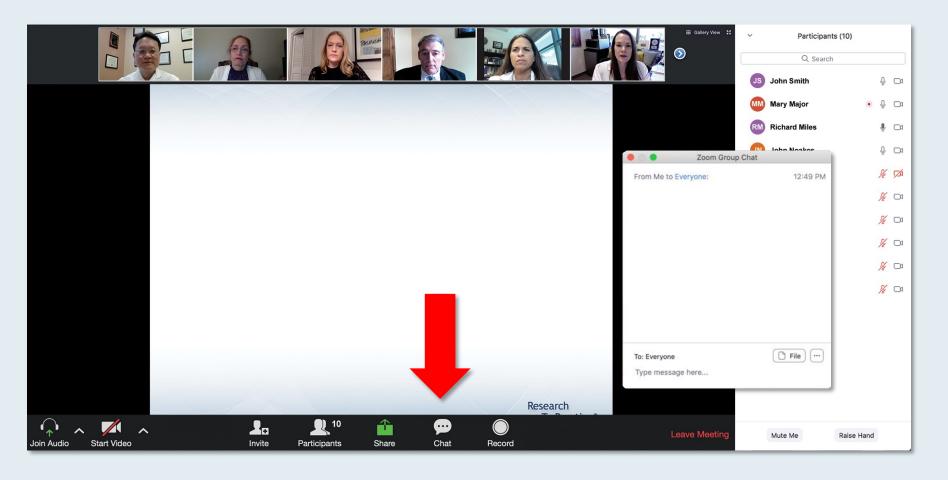


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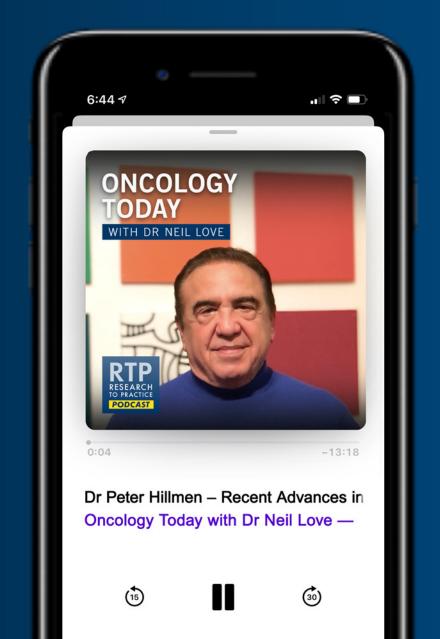


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DANA-FARBER/BRIGHAM AND WOMEN'S CANCER CENTER

Optimizing First-Line Management for Newly Diagnosed CLL

Jennifer R. Brown, M.D., Ph.D.

Director, CLL Center, and Institute Physician
Dana-Farber Cancer Institute
Worthington and Margaret Collette Professor of Medicine
In the Field of Hematologic Oncology
Harvard Medical School

Treatment of Relapsed/Refractory CLL; Novel and Investigational Strategies

Deborah Stephens, DO









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- Venetoclax
- BTK inhibitors

MODULE 2: Combining BTK inhibitors with venetoclax; venetoclax consolidation

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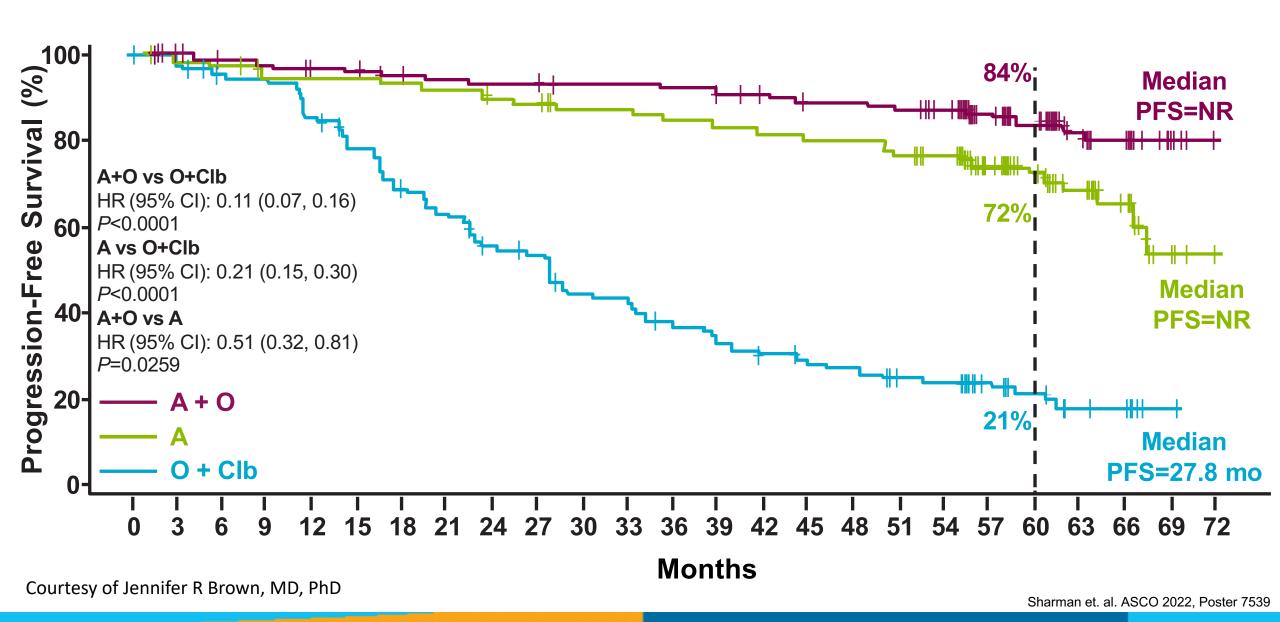
Conclusions: CLL14

- One year time limited therapy
- Highly active, median PFS > 5 yrs
- Depth of MRD strongly associated with PFS and now also with OS
- Duration of remission depends on prognostic factors
- Potential to re-treat but limited data as yet

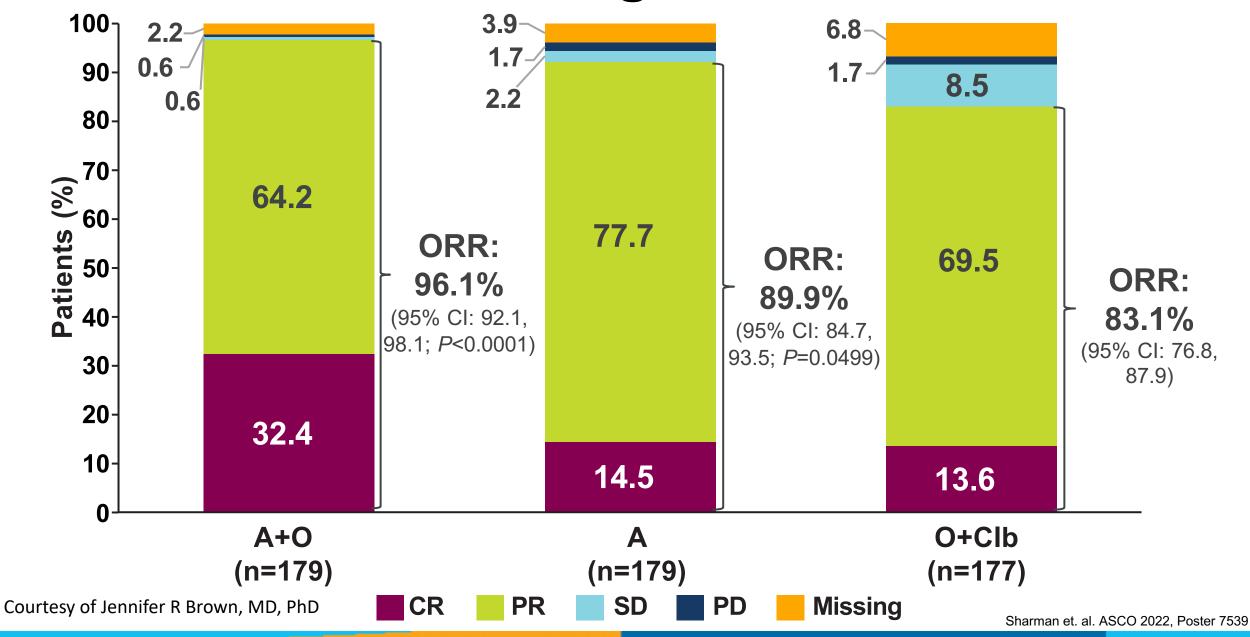
Conclusions: CLL13

- One year time limited therapy in fit patients
- Obinutuzumab containing regimens have the highest uMRD and best PFS (3 yr 88-91%)
- VenR not better than CIT
- FCR in patients < 65 has similar 3 yr PFS to the obinutuzumab containing regimens

ELEVATE-TN: 5 Yr Investigator-Assessed PFS



ELEVATE-TN: Investigator-Assessed ORR

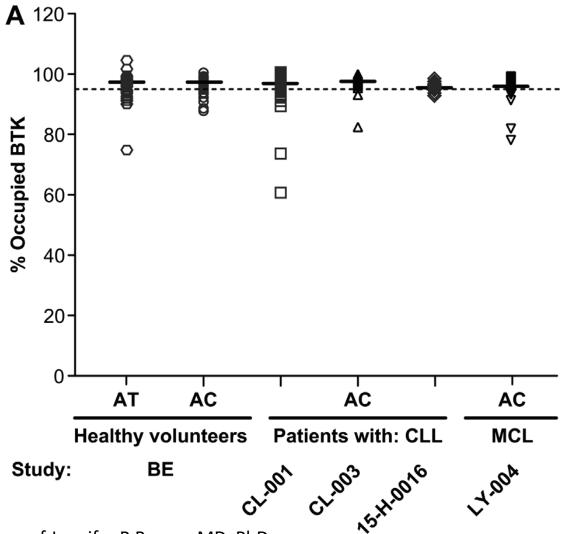


Conclusions: ELEVATE-TN

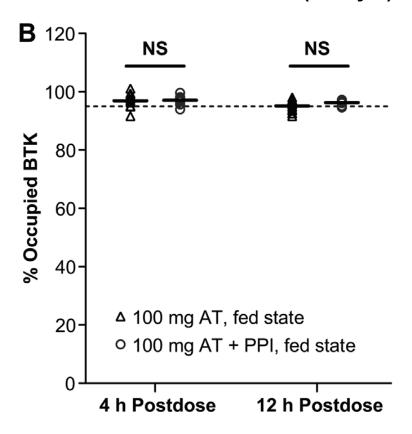
- Addition of obinutuzumab to acalabrutinib improves 5 yr PFS by 12%
- Obinutuzumab led to higher CR rate and higher uMRD
- Has not been widely adopted but perhaps should be

Pharmacodynamics of BTK Receptor Occupancy

Following Administration of Acalabrutinib: Comparison of AT to AC (Across Several Studies)



Following Administration of Acalabrutinib (Fed State) in the Absence or Presence of a PPI (Study 1)



Conclusions: Acala Tablet

 Characterization of the acalabrutinib tablet formulation shows similarity to the capsule

 Absorption similar regardless of stomach acidity so tablet can be used with PPIs **SEQUOIA (BGB-3111-304)**

Study Design

Key Eligibility Criteria

- Untreated CLL/SLL
- Met iwCLL criteria for treatment
- ≥65 y of age OR unsuitable for treatment with FCR^a
- Anticoagulation and CYP3A inhibitors allowed

ClinicalTrials.gov: NCT03336333

Cohort 1
without del(17p)
by central FISH
planned n ~450

R 1:1

open-label

Stratification Factors

Age, Binet stage, IGHV status, geographic region

Arm A: Zanubrutinib
160 mg bid until PD, intolerable
toxicity, or end of study

Arm B:

Bendamustine (90 mg/m² D1 & D2)

+ Rituximab (375 mg/m² C1, then 500 mg/m² C2-C6)

x 6 cycles

Cohort 2

with del(17p) planned n ~100

Arm C: Zanubrutinib

Cohort 3¹

with del(17p) planned n ~80

Arm D: Zanubrutinib + Venetoclax

Courtesy of Jennifer R Brown, MD, PhD

Tam et al. Lancet Oncology 2022

Conclusions: SEQUOIA

- Frontline registration trial for zanubrutinib
- 2 yr PFS 86%
- Includes largest dedicated prospective cohort of patients with 17p deletion – 89% 2 yr PFS
- Ongoing cohort of zanu ven

ALPINE: Phase 3, Randomized Study of Zanubrutinib vs Ibrutinib in Patients With Relapsed/Refractory CLL or SLL

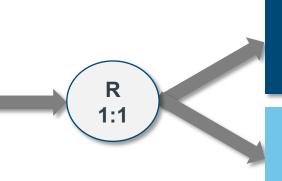
R/R CLL/SLL with ≥ 1 prior treatment (Planned N=600, Actual N=652)

Key Inclusion Criteria

- R/R to ≥1 prior systemic therapy for CLL/SLL
- Measurable lymphadenopathy by CT or MRI

Key Exclusion Criteria

- Current or past Richter's transformation
- Prior BTK inhibitor therapy
- Treatment with warfarin or other vitamin K antagonists



Arm A

Zanubrutinib 160 mg BID

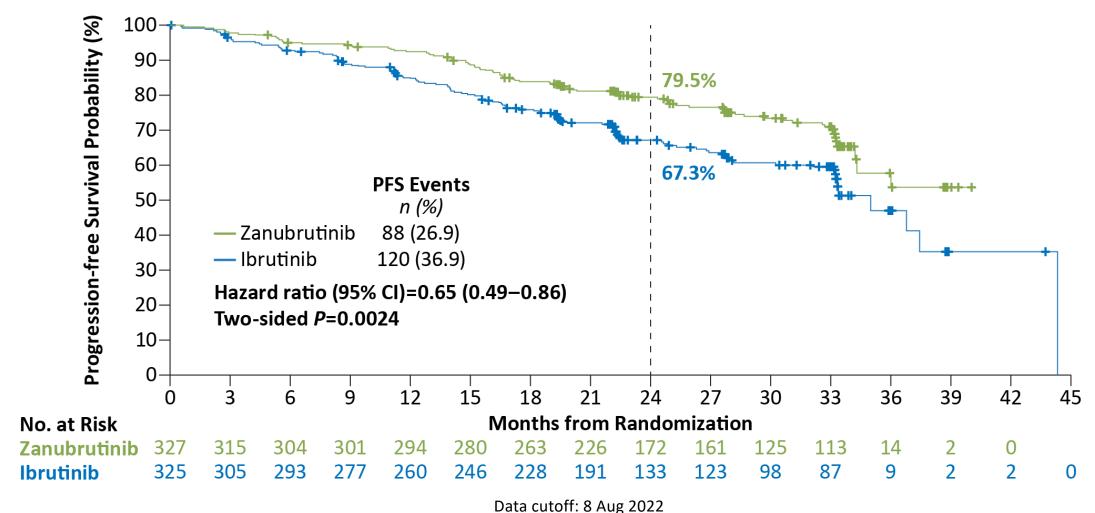
Arm B
Ibrutinib 420 mg QD

Stratification Factors

- Age
- Geographic region
- Refractory status
- Del(17p)/TP53 mutation status

ALPINE: Zanubrutinib PFS by IRC Significantly Superior to Ibrutinib

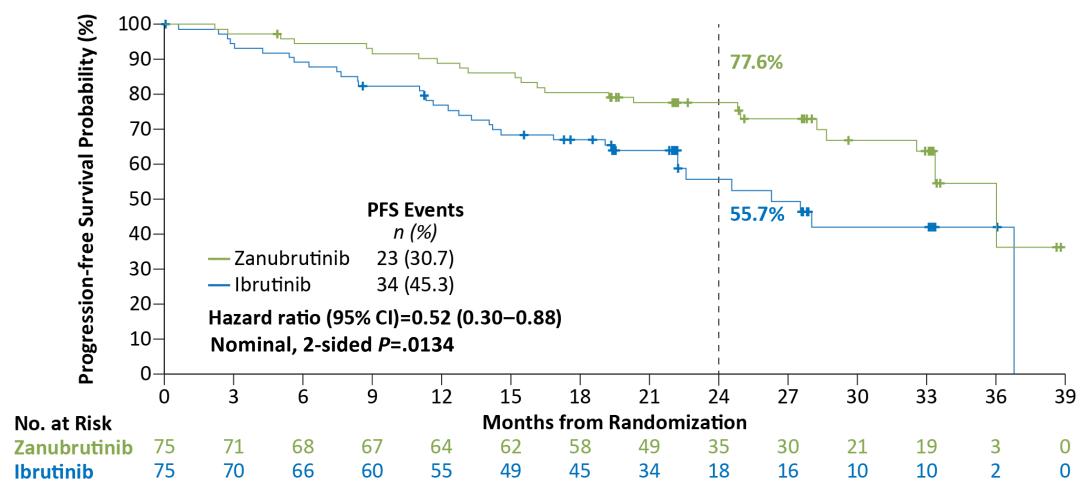
Median study follow-up of 29.6 months



Brown JR et al ASH 2022; Abstract LBA-6

Courtesy of Jennifer R Brown, MD, PhD

ALPINE: Zanubrutinib Improved PFS in Patients with del(17p)/TP53^{mut}



PFS data assessed by IRC

Data cutoff: 8 Aug 2022

Conclusions: ALPINE

- First demonstrated efficacy benefit in head-to-head comparison of BTK inhibitors
- 2 yr PFS improved 12% by zanubrutinib in entire population, 22% in the del17p/TP53 aberrant population
- Zanubrutinib also safer: fewer drug holds/ interruptions/ discontinuations
- Cardiac safety much better: 1 discontinuation vs 14 with ibrutinib; 0 deaths vs 6 with ibrutinib

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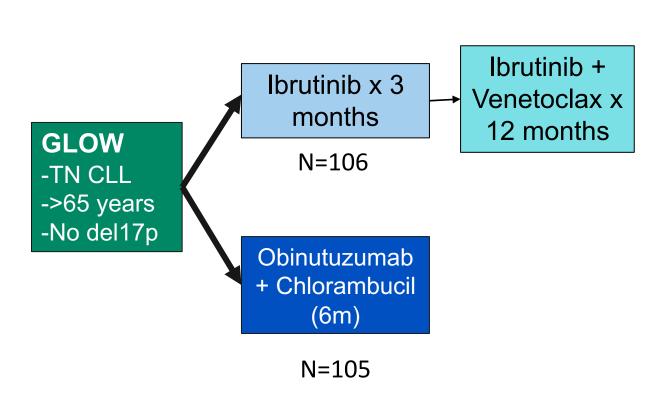


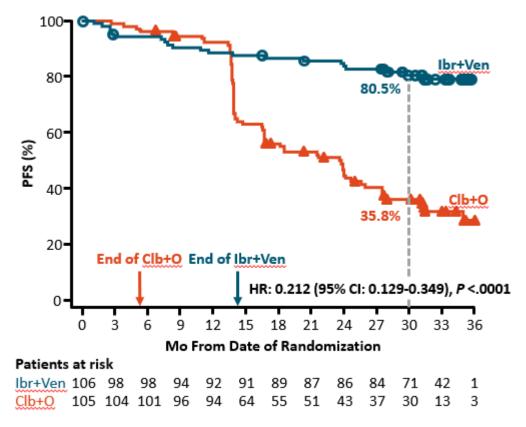
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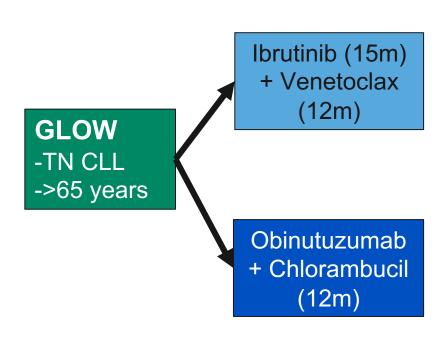






Ibrutinib + Venetoclax ↑ PFS – Approved for TN CLL patients in Europe

GLOW- Takeaway



PROS

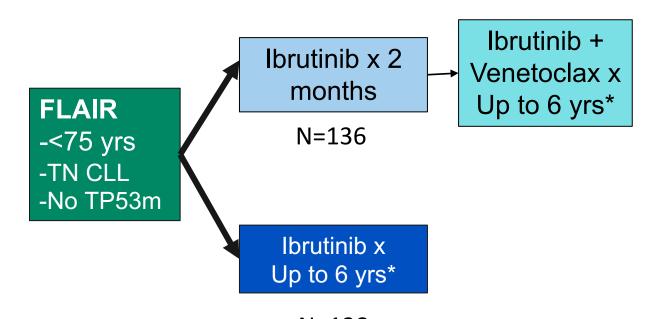
- •Limits risk of TLS with venetoclax
- •Allows for a time-limited •Cost/insurance coverage frontline BTKi treatment
- •Evidence of responses to ibrutinib following relapse

CONS

- Toxicity (better with acala?)
- Unclear which population may benefit most
- As of yet, no clear evidence of functional cure

Where to use? Young? High-risk? High Tumor Burden?

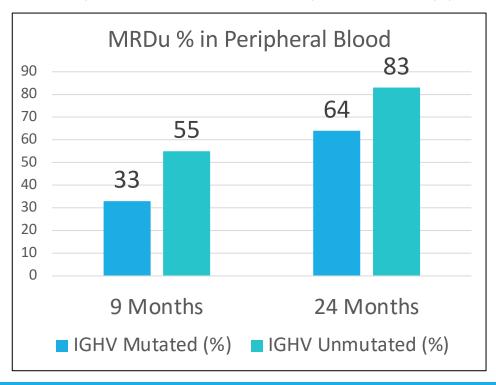
FLAIR



N=138 *Therapy stopped after MRD undetectable (flow < 10^{-4}) x 3 mos

Primary Endpoint: MRD eradication

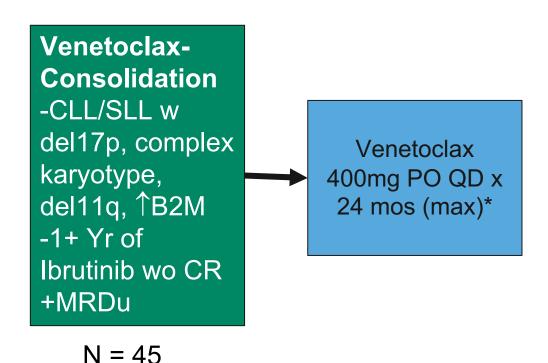
Analysis of MRD within 2 yrs of therapy



FLAIR-MRDu - Takeaway

- •In frontline CLL treatment with Ibr+Ven:
 - patients with IGHV unmutated status were more likely to achieve MRDu and achieved it at a faster pace than those with IGHV mutated status.
 - 83% of patients with Del(11q) and 55% of patients with del(13q) achieved MRDu within 2 years of treatment
- •Unmutated IGHV and del(11q) CLL may be particularly responsive to the lbr + Ven regimen.
- These subtypes may be more dependent on B-cell signaling.
- Longer follow-up will determine if difference in timing and achievement of MRDu will have on PFS and OS

Venetoclax Consolidation



Median follow-up = 37.5 mos

Best cumulative rate of MRDu = 73%

Best rate of CR/Cri = 57%

Discontinued ibrutinib and venetoclax = 49%

Patients with progression = 4/45 (9%)

- ∘ 1 during combination
- 3 during ibrutinib maintenance
- 1 Richter's transformation

*Venetoclax stopped after CR and BM MRDu (flow $< 10^{-4}$) x 6 mos; Ibrutinib could be discontinued at physician discretion

Venetoclax Consolidation - Takeaway

Consolidation resulted in high rate of MRDu (73%) and CR/Cri (57%)

Most patients with MRDu at end of venetoclax remain in MRDu

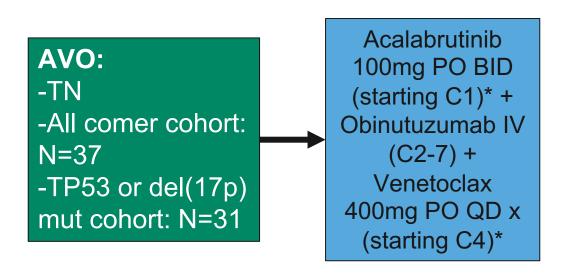
Effective consolidation strategy

Future directions: High risk cohort (del17p and complex karyotype), on treatment with acalabrutinib.

Is consolidation with venetoclax better than sequential therapy with venetoclax?

	TP53 WT (%)	TP53 MUT (%)
BM MRDu at C16	89	83

AVO for Frontline CLL



D/c acala + venetoclax = 63% (43/68)

Median time off therapy = 19 mos (range=0-30)

Patients with progression after D/c tx = 4/43 (9%)

- 3 MRD recurrence only
- ∘ 1 CLL progression

Overall patients with PD or death = 5/68 (7%)

- ∘ 1 CLL progression
- 3 Transformation events
- ∘ 1 COVID-related death

PFS at 35 months = 93%

*Venetoclax and acalabrutinib stopped at C16 or C25 if MRDu (flow < 10⁻⁴)

AVO for Frontline CLL - Takeaway

High MRDu rates (>80%) regardless of TP53 mutation status

Durable responses after d/c therapy – supporting time limited therapy option, even for high-risk disease

Future directions: Ongoing AMPLIFY trial = AVO vs AV vs CIT

Will durability of response maintain in high-risk group with longer follow-up?

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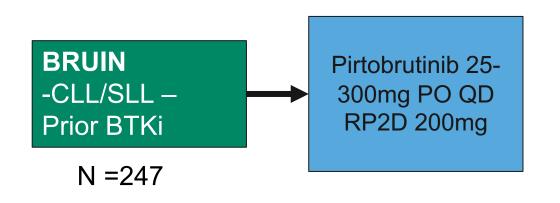
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BRUIN Phase 1/2 - Prior BTKi



Pirtobrutinib = Noncovalent BTKi; binds in C418-independent manner

Most common AEs (mostly Grade 1-2):

Fatigue, diarrhea, neutropenia, contusion

Grade 3+ AEs: rare

Atrial fibrillation: 3%

	Prior BTKi (n=247)	Prior BTKi and BCL2i (n=100)
Best ORR (%)	82	79

BRUIN Phase 1/2 — Prior BTKi

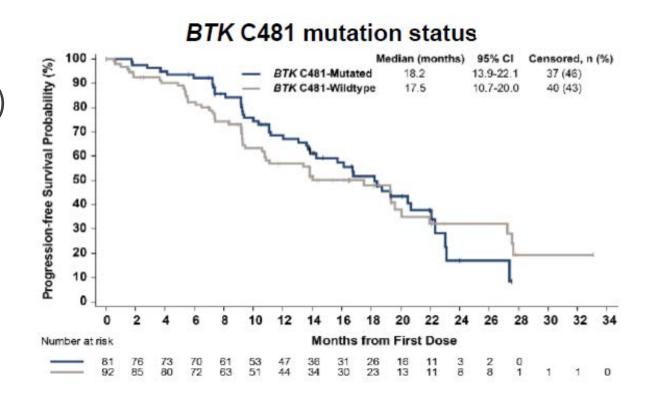
Median follow-up = 19 mos

Median PFS

- All Prior BTKi (median 3 prior Rx; n=247)= 20 mos
- Prior BTKi and BCL2i (median 5 prior Rx;
 n=100) = 17 mos

No difference in PFS curves for:

- C481 Mut vs WT
- Age < vs > 75 years
- Del(17p) and/or TP53 Mut vs WT



BRUIN- Takeaway

With 1.5 years of follow-up, pirtobrutinib shows efficacy in heavily pretreated and high-risk (C481S and TP53 Mut) CLL.

Toxicity profile continues to be very well-tolerated.

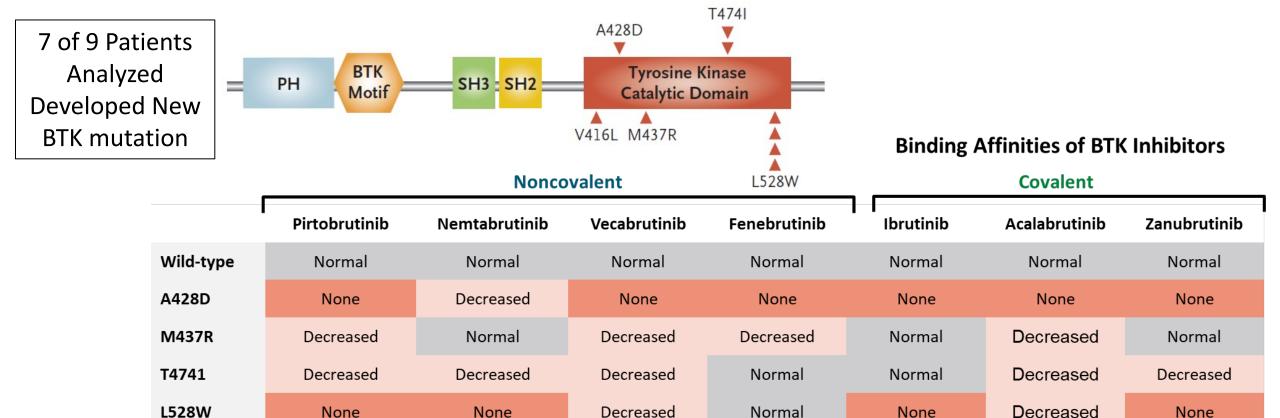
CLL with prior BTKi and BCL2i is still an area of un-met need.

Resistance to Pirtobrutinib

Normal

C481S

Normal



Normal

Normal

Decreased

Decreased

Decreased

Pirtobrutinib Resistance- Takeaway

In a small sample of 9 patients, CLL resistance to pirtobrutinib has now been described.

7/9 developed new BTK mutations.

All BTKi tested had different abilities to inhibit the described mutations.

Caution should be used in moving pirtobrutinib to front-line setting unless very durable remissions are seen in this setting.

CLL with prior BTKi and BCL2i is still an area of un-met need.

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- BTK inhibitors

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MODULE 3: Noncovalent BTK inhibitors; pirtobrutinib

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TRANSCEND

Lisocabtagene maraleucel = CD19-directed, defined T-cell composition CART product

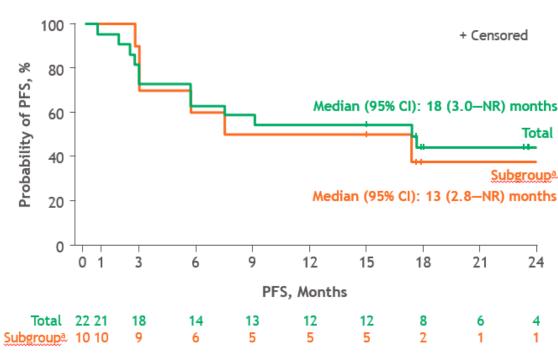
Phase 1/2 Study = 23 R/R CLL

11 with prior BTKi and BCL2i

PFS was similar between double refractory vs not group

Important Toxicities

- Cytokine release syndrome
 - All grade = 74%; Grade 3+ = 9%
- Neurotoxicity
 - All grade = 29%; Grade 3+ = 21%



TRANSCEND- Takeaway

In a high-risk R/R CLL population, Liso-cel led to deep remissions (75% MRDu).

However, especially in patients previously treated with BTKi and BCL2, PFS is similar to what was seen with pirtobrutinib and has more toxicity (and cost) than pirtobrutinib.

Toxicity may limit the population that can receive CART.

Should we use CART as a bridge to more definitive therapy? CLL with prior BTKi and BCL2i is still an area of un-met need.

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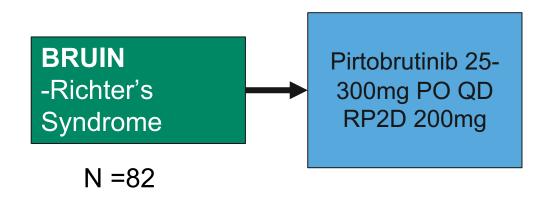
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BRUIN Phase 1/2 – Richter's Syndrome



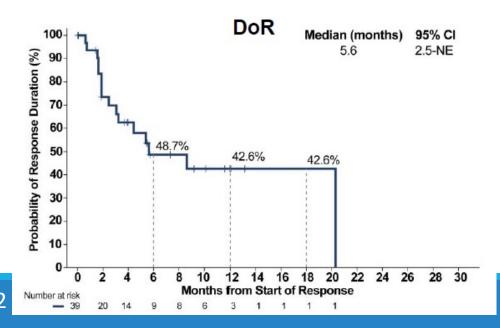
Heavily	Pretreated:
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- Median Prior CLL and RT Rx = 4 (0-13)
- Prior BTKi = 34%
- Prior BCL2i = 38%
- Prior CART = 11%

	ORR	CRR
Responders, n (%)	39/75 (52)	10 (13)

Median PFS = 3.7 mos

Median OS = 13.1 mos



BRUIN- Richter's Takeaway

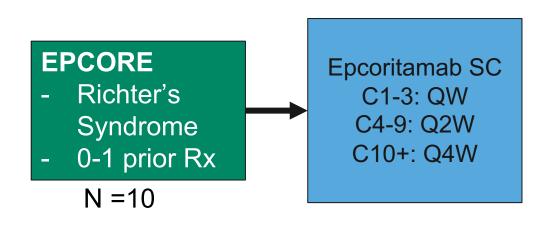
Pirtobrutinib led to responses in heavily pretreated patients, including 13% complete responses.

PFS and OS are still short for these patients.

6 patients were able to proceed to curative intent allogeneic stem cell transplant.

Should we use pirtobrutinib as a bridge to more definitive therapy? Richter's Syndrome remains an area of un-met need.

EPCORE- Richter's Syndrome



Bispecific Antibody to CD3/CD20 Median Prior CLL Rx = 3 (0-7)

	ORR	CRR
Responders, n (%)	6/10 (60)	5/10 (50)

Cytokine Release Syndrome: n = 90% (all grade 1/2)

- First full dose given C1D15
- Median time from first full dose to CRS =
 13 hrs
- Median time to resolution = 3 (2-9) days

Neurotoxicity = 0%

EPCORE- Richter's Takeaway

In a small study of 10 patients with Richter's Syndrome, epcoritamab delivered a 60% ORR and 50% CRR.

Good toxicity profile with low-grade CRS.

Follow-up is short and more information is needed about duration of response.

Should we use epcoritamab as a bridge to more definitive therapy? Richter's Syndrome remains an area of un-met need.

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Summary of AEs with Targeted Agents in CLL

AEs With BTKi Atrial Arthralgia fibrillation **BTK Inhibitors** Infection **Bleeding** Hypertension Diarrhea

Additional important AEs: dermatologic changes, fatigue, cytopenias, and ventricular arrhythmias





TLS



GI events



Infections



Myelosuppression

General Tips for AE Management in CLL

- In the setting of active infection it is generally best to hold drug at least until seeing signs of clinical improvement (possible exception of mild COVID-19)
- For most toxicities requiring drug hold, it is preferable to either re-challenge with full dose or to start back at dose reduction but then get back to full dose
- I am more hesitant to hold drug soon after starting a novel agent or in a patient who is progressing on a novel agent
- I am less concerned about stopping drug in patients who have been on novel agents for at least a few months and are in a good clinical response
- It is generally safe to give growth factor support concomitantly with novel agents
- Patients who have to permanently discontinue a novel agent due to toxicity do not necessarily need to immediately start on a new therapy

Tips for BTKi toxicity management¹

- Avoid warfarin when anticoagulation needed
- Hypertension: proactively manage with antihypertensives
- Monitor for and manage cardiac arrhythmia/a-fib; treat appropriately
- Monitor patients for signs of bleeding

- Headaches commonly occur early in therapy with acalabrutinib and typically resolved in 1-2 months (manage with acetaminophen + caffeine)
- Monitor for neutropenia (particularly with zanubrutinib), use GCSF prn
- Monitor for infections and secondary malignancies
- Hold perioperatively depending on how significant the procedure is

US cooperative group studies suggest Gr 3/4 ibrutinib toxicities may be less in younger patients

Adverse event	IR Arm Alliance n=181	IR Arm E1912 N=352
Median age	71 yrs	57 yrs
Age range	65 - 86	31 - 70
Infection	19%	5%
Atrial fibrillation	6%	3%
Bleeding	4%	1%
Hypertension	34%	7%
Deaths during active treatment + 30 days	7%*	1%

Adapted from Shanafelt et al., ASH, 2018
Courtesy of Matthew S Davids, MD, MMSc

Reasons for Ibrutinib Discontinuation Outside of Clinical Trials

Most Common Ibrutinib-related Toxicities as Reasons for Discontinuation		
Relapsed CLL (%)	Front-line CLL (%)	
Atrial fibrillation (12.3)	Arthralgia (41.6)	
Infection (10.7)	Atrial fibrillation (25)	
Pneumonitis (9.9)	Rash (16.7)	
Bleeding (9)		
Diarrhea (6.6)		

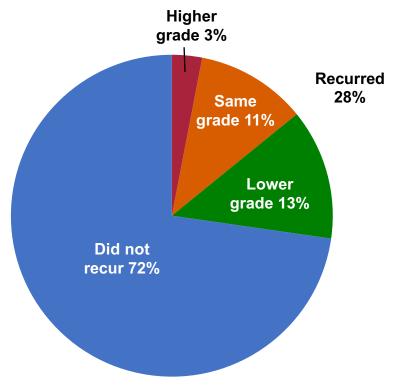
Median Times to Ibrutinib Discontinuation Stratified by Toxicity		
Bleeding	8 months	
Diarrhea	7.5 months	
Atrial fibrillation	7 months	
Infection	6 months	
Arthralgia	5 months	
Pneumonitis	4.5 months	
Rash	3.5 months	

Mato, et al. *Blood*. 2016;128 (22): 3222

• Ibrutinib discontinuation due to AEs is common in the real-world setting (41% discontinuation at median of 17 mo.)

Acalabrutinib can be well-tolerated in ibrutinib-intolerant patients

Subset analysis of patients with ibrutinib intolerance enrolled in phase 1/2 ACE-CL-001 (n = 33)



Recurrence of Ibrutinib-Related Adverse Events (n=61)

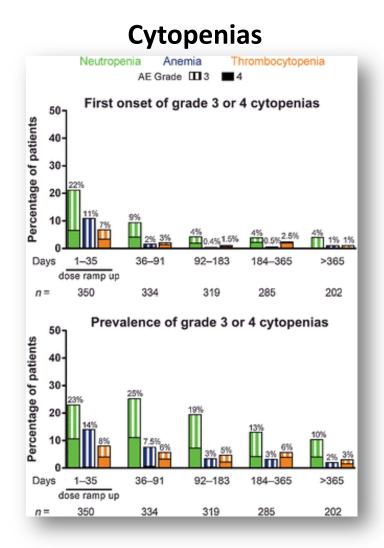
During Acalabrutinib Treatment

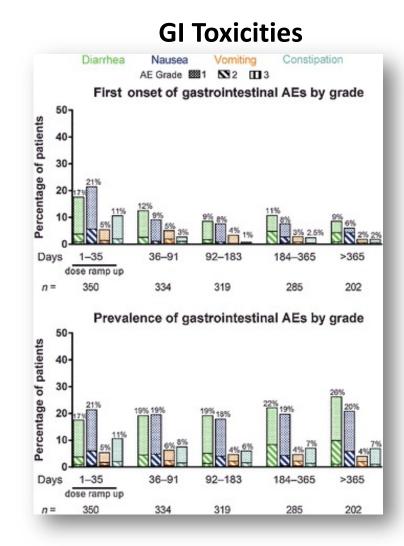
- ~70% of patients remained on acalabrutinib after a median of 19 months
 - 3 patients had discontinued acalabrutinib due to AEs; 4 patients discontinued due to progressive disease

Tips for venetoclax toxicity management

- For neutropenia (e.g. ANC <1,000), it is helpful to give growth factor support (pegfilgrastim when available) and continue venetoclax
 - Individualized frequency based on patient response
- For diarrhea, infectious etiologies should be ruled out and then anti-diarrheals can be used while continuing venetoclax
- For nausea: adjust dose timing and use antiemetics
- Dose interruption and dose reduction can be used for persistent toxicities despite the above measures
- Does not need to be held perioperatively

Venetoclax risks tend to decrease over time





• 2/166 (1.4%) of patients treated with current dosing algorithm had biochemical laboratory changes in TLS parameters, but none had clinical TLS

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ASH 2022: Promising investigational agents in CLL

BTK Degraders

• 965. NX-2127-001, a First-in-Human Trial of **NX-2127**, a Bruton's Tyrosine Kinase-Targeted Protein Degrader, in Patients with Relapsed or Refractory Chronic Lymphocytic Leukemia and B-Cell Malignancies

Bispecific T cell Engagers

• 348. Subcutaneous **Epcoritamab** in Patients with Richter's Syndrome: Early Results from Phase 1b/2 Trial (EPCORE CLL-1)

Protein Kinase C β Inhibitor

• 963. Initial Results from a Phase 1/2 Dose Escalation and Expansion Study Evaluating MS-553, a Novel and Selective PKCβ Inhibitor, in Patients with CLL/SLL

ROR1

• 1810. First-in-Human Phase I Trial of a ROR1 Targeting Bispecific T Cell Engager (**NVG-111**) in Combination with Ibrutinib or As Monotherapy in Subjects with Relapsed Refractory Chronic Lymphocytic Leukaemia (CLL) and Mantle Cell Lymphoma (MCL)

New BCL2i

- 962. A Phase 1 Study with the Novel B-Cell Lymphoma 2 (Bcl-2) Inhibitor **Bgb-11417** As Monotherapy or in Combination with Zanubrutinib (ZANU) in Patients (Pts) with CLL/SLL: Preliminary Data

Year in Review: Clinical Investigator Perspectives on the Most Relevant New Data Sets and Advances in Oncology

Multiple Myeloma

Tuesday, January 10, 2023 5:00 PM - 6:00 PM ET

Faculty

Joseph Mikhael, MD, MEd Ajay K Nooka, MD, MPH

Moderator Neil Love, MD



Thank you for joining us!

CME and MOC credit information will be emailed to each participant within 5 business days.

