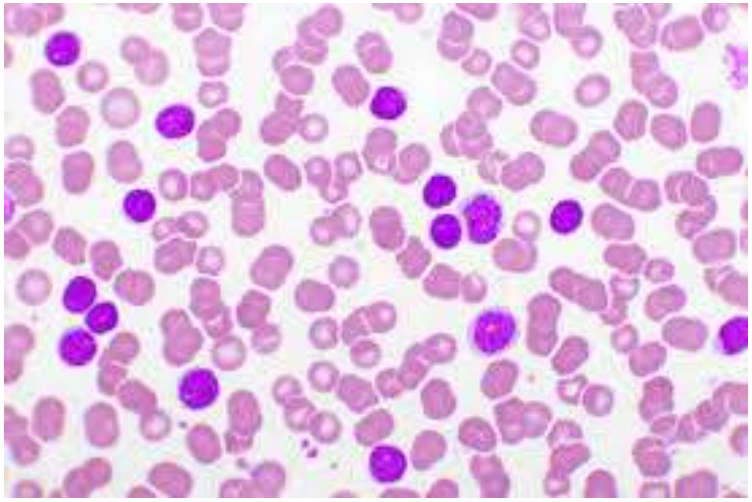

CD Markers for Reactive vs CLL Infiltrate

CD Marker	Reactive Infiltrate	CLL Neoplastic Infiltrate
CD3	+	–
CD5	+	+
CD20	–	+
CD23	–	+
CD43	+	+

Abbreviation: CLL, chronic lymphocytic leukemia.

Data from Wilson et al.[7]

How I treat CLL…

Pankaj Malhotra

PGI, Chandigarh

30% never require treatment

Progressive cytopenias
(Disease/autoimmune)
(Anemia, thrombocytopenia)

Indications of Treatment

Progressive lymphadenopathy

Weight loss, Night sweats,
Fever

Recurrent infections, organ
dysfunction

International Workshop on Chronic Lymphocytic Leukemia (iwCLL) criteria for "active disease"

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Constitutional symptoms, defined as any one or more of the following disease-related symptoms or signs: a. Unintentional weight loss of ≥10% within the previous 6 months b. Significant fatigue (ie, ECOG PS ≤2; inability to work or perform usual activities) c. Fevers >100.5°F or 38.0°C for ≥2 weeks without other evidence of infection d. Night sweats for ≥1 month without evidence of infection

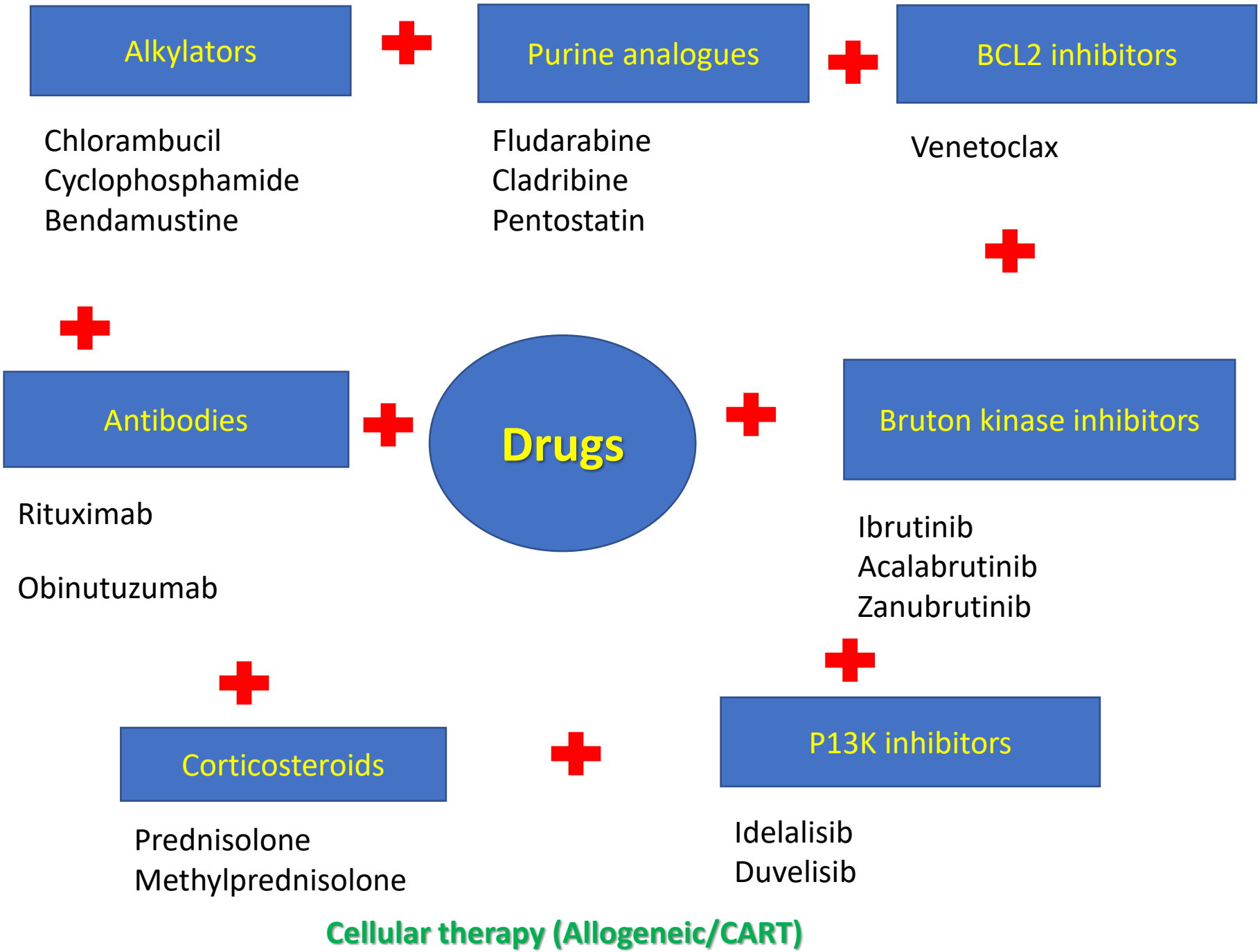
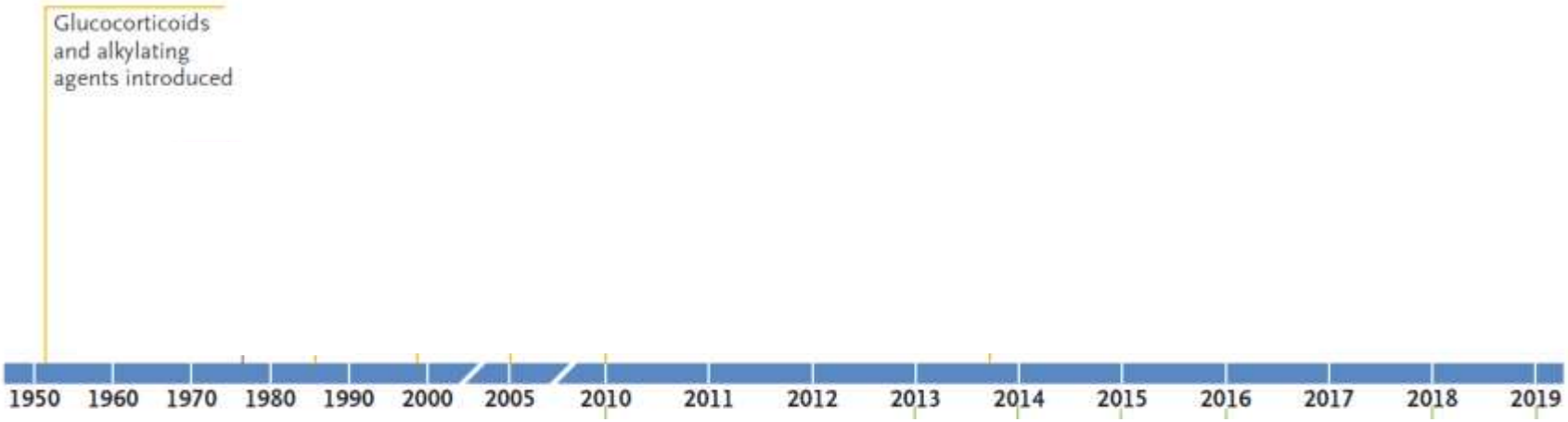

Alkylators
Chlorambucil
Cyclophosphamide
Bendamustine
Purine analogues
Fludarabine
Cladribine
Pentostatin
BCL2 inhibitors
Venetoclax
Antibodies
Rituximab
Obinutuzumab
Drugs
Bruton kinase inhibitors
Ibrutinib
Acalabrutinib
Zanubrutinib
Corticosteroids
Prednisolone
Methylprednisolone
P13K inhibitors
Idelalisib
Duvelisib
Cellular therapy (Allogeneic/CART)

Figure 4. Milestones in Clinical CLL Research.



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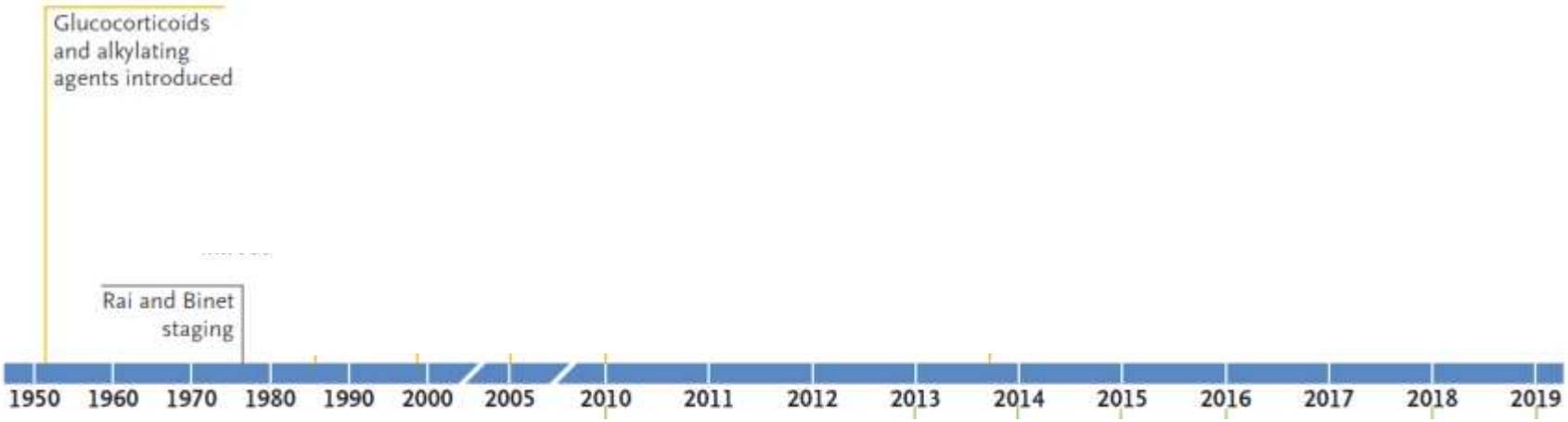

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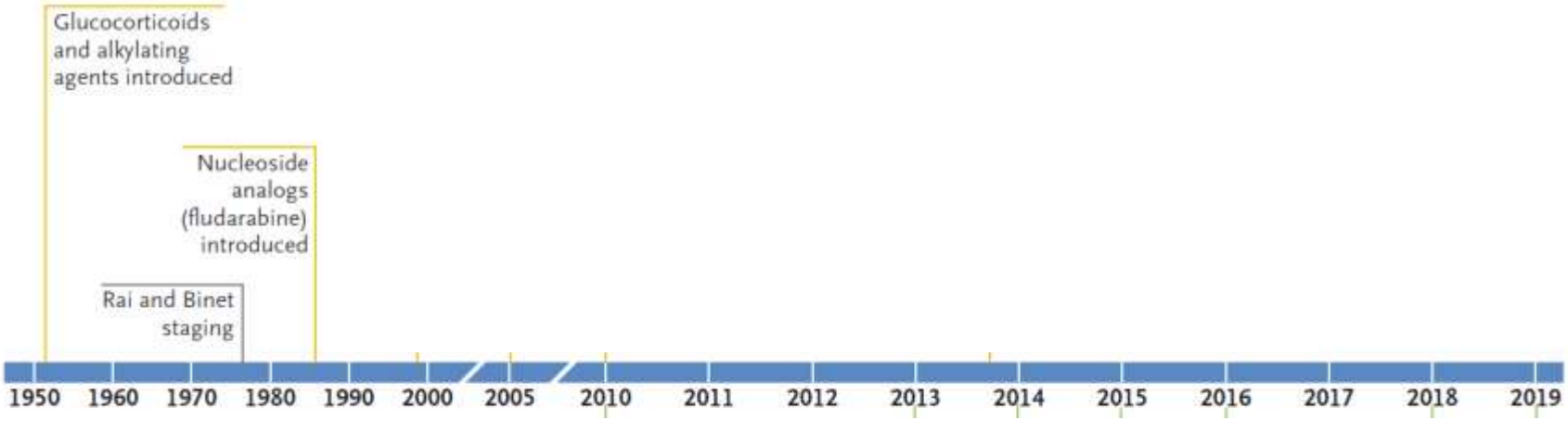

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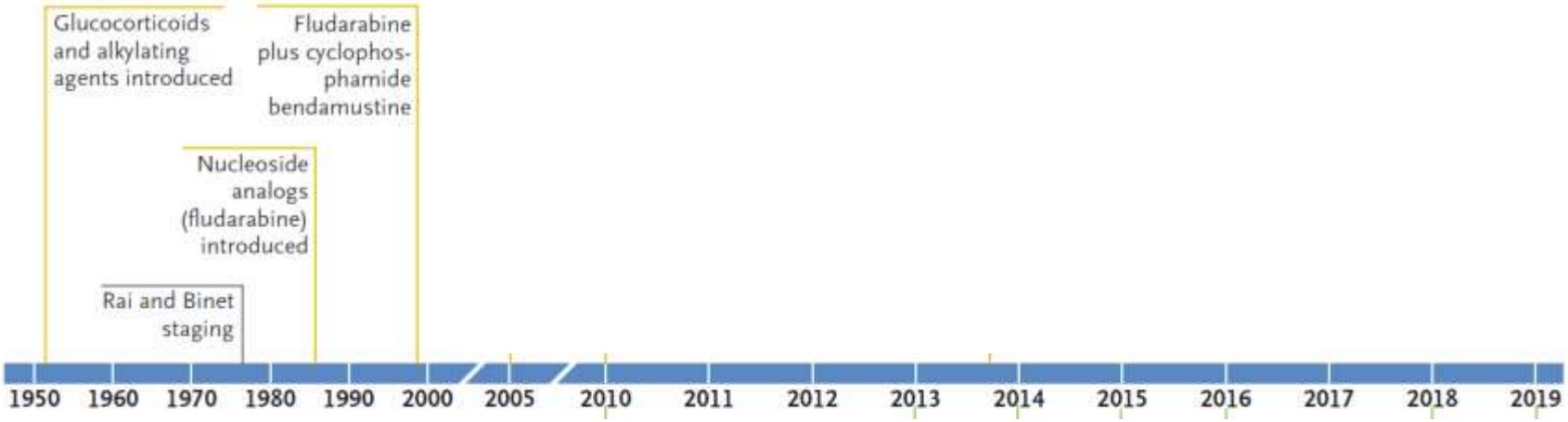

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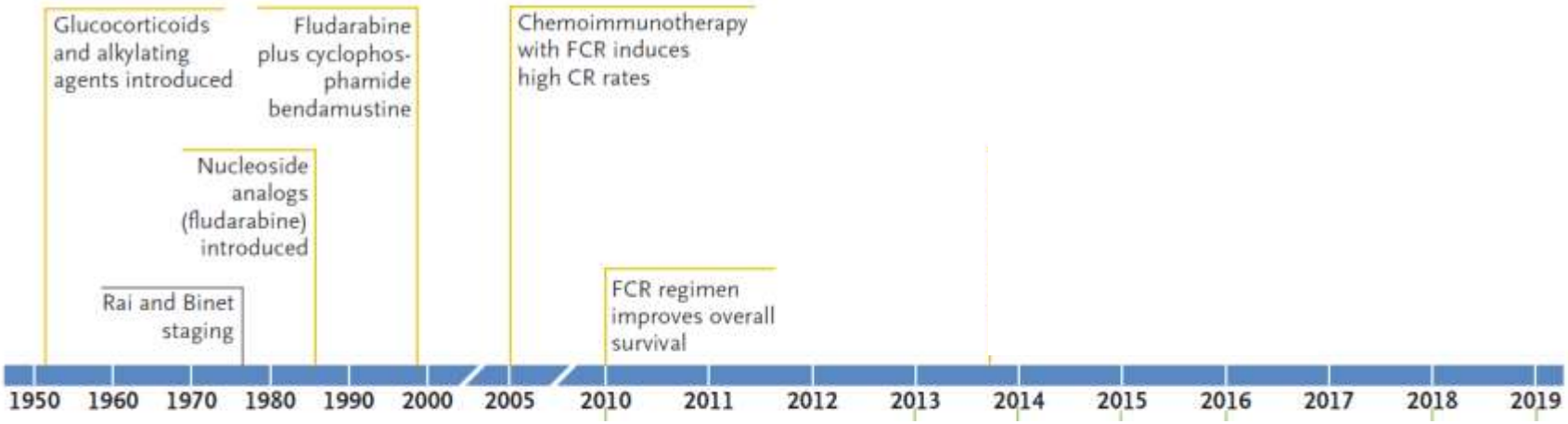

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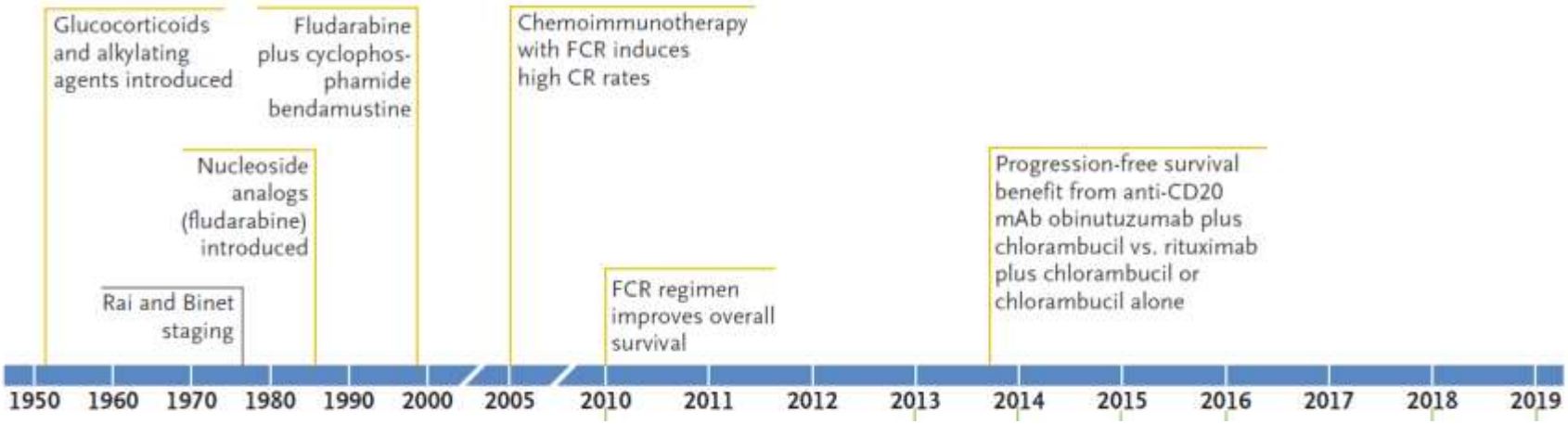

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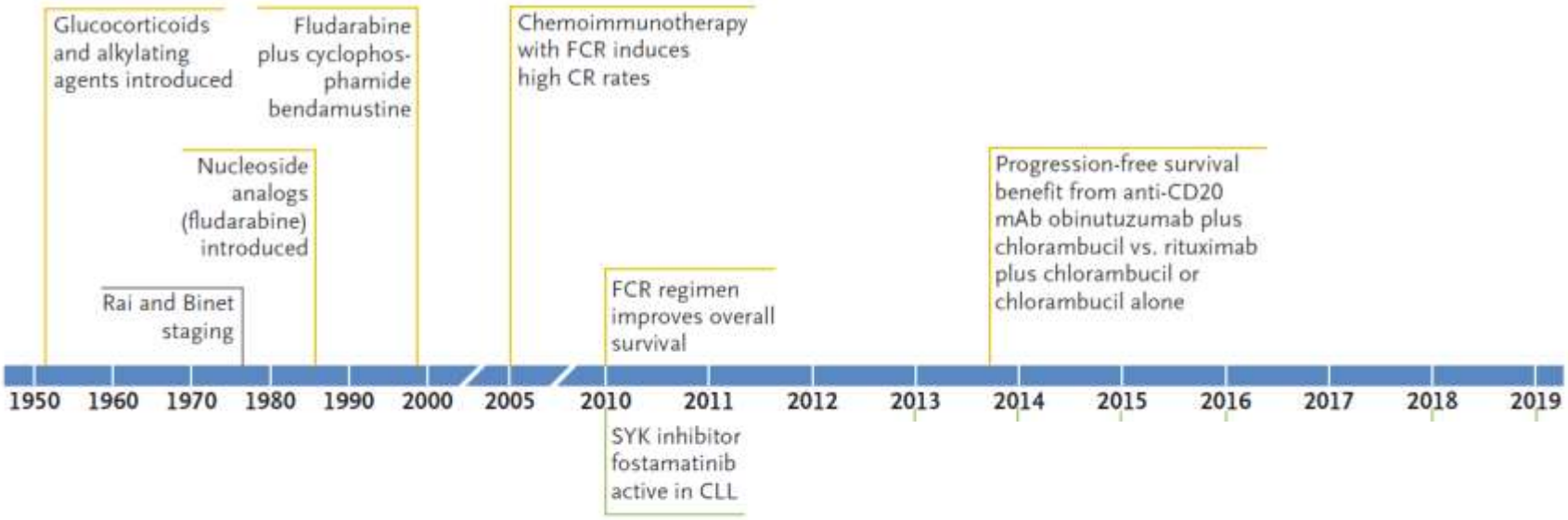

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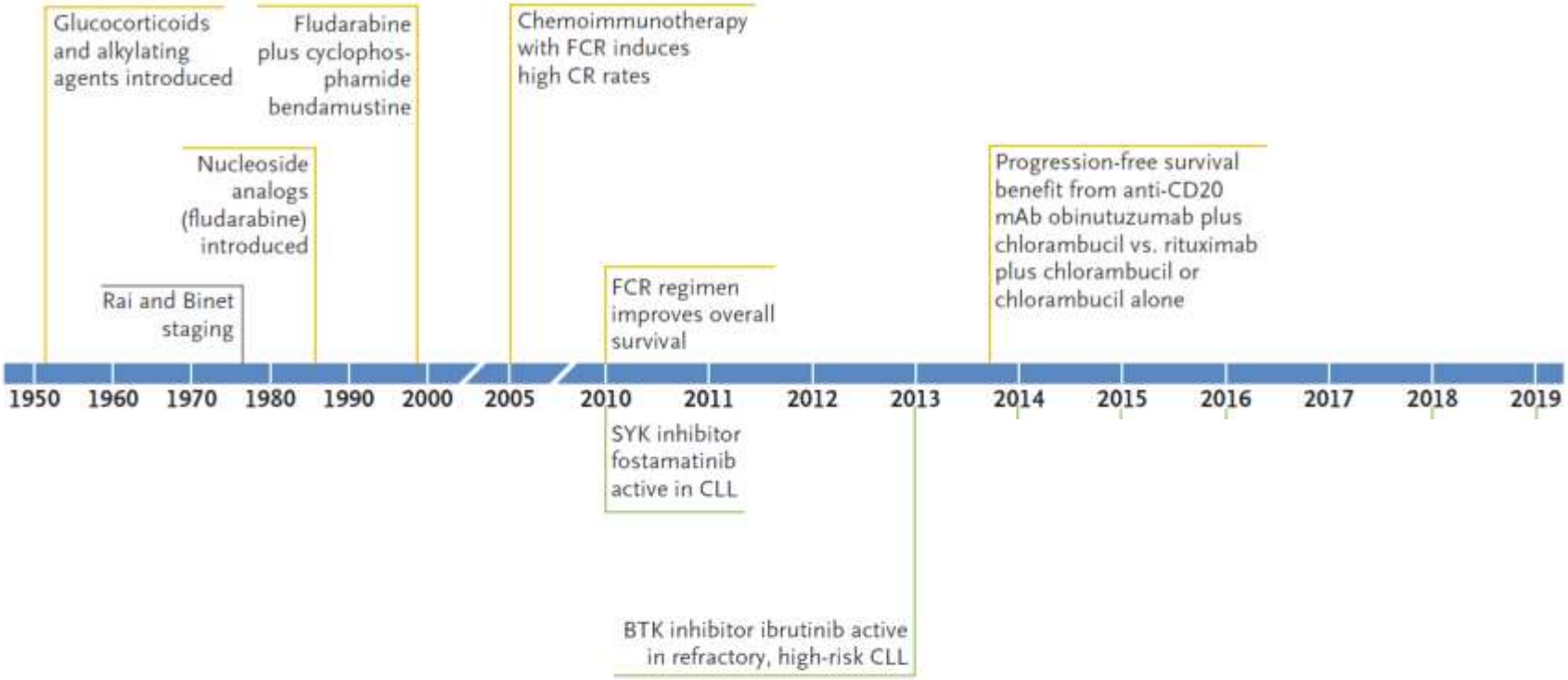

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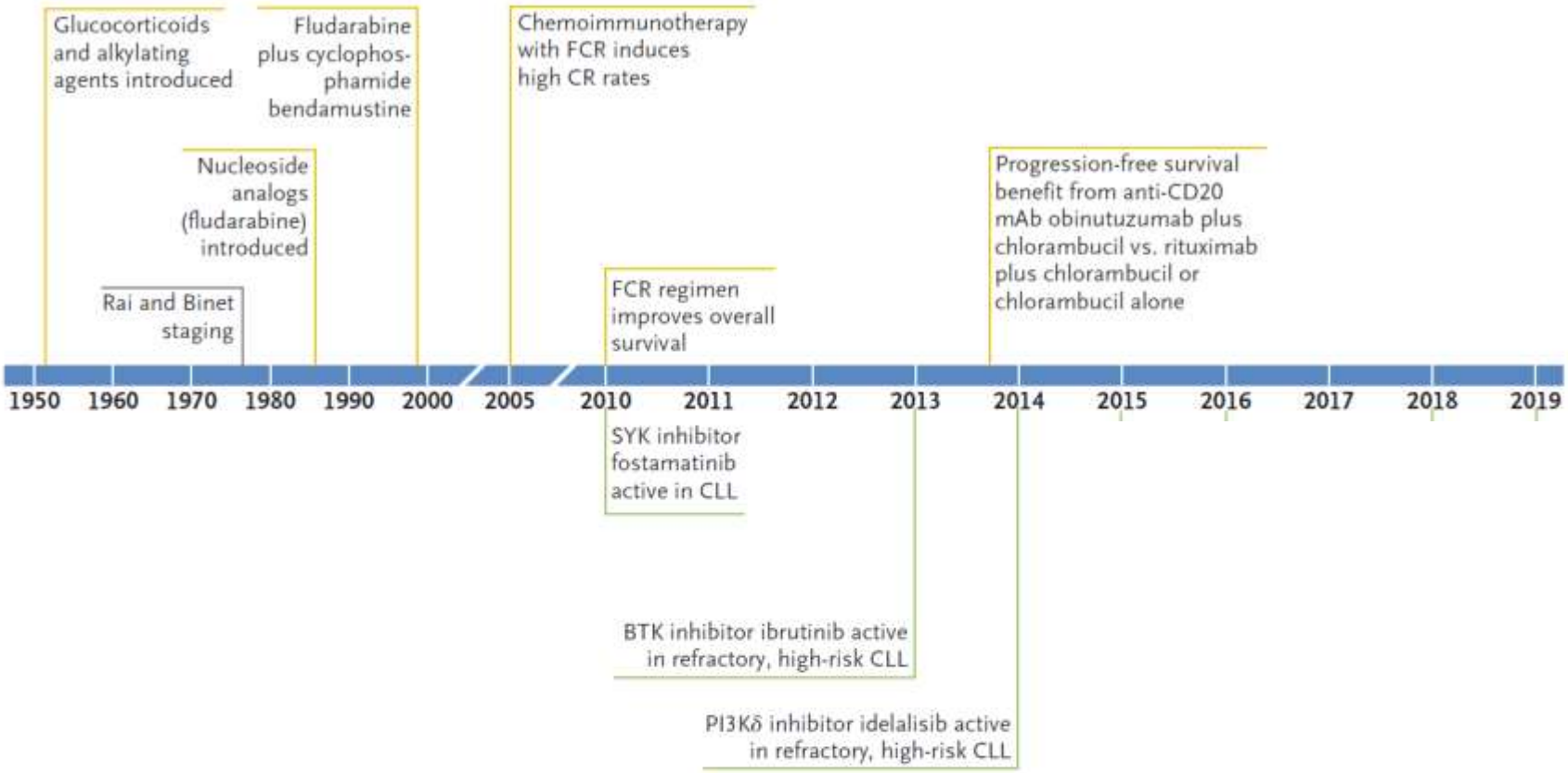

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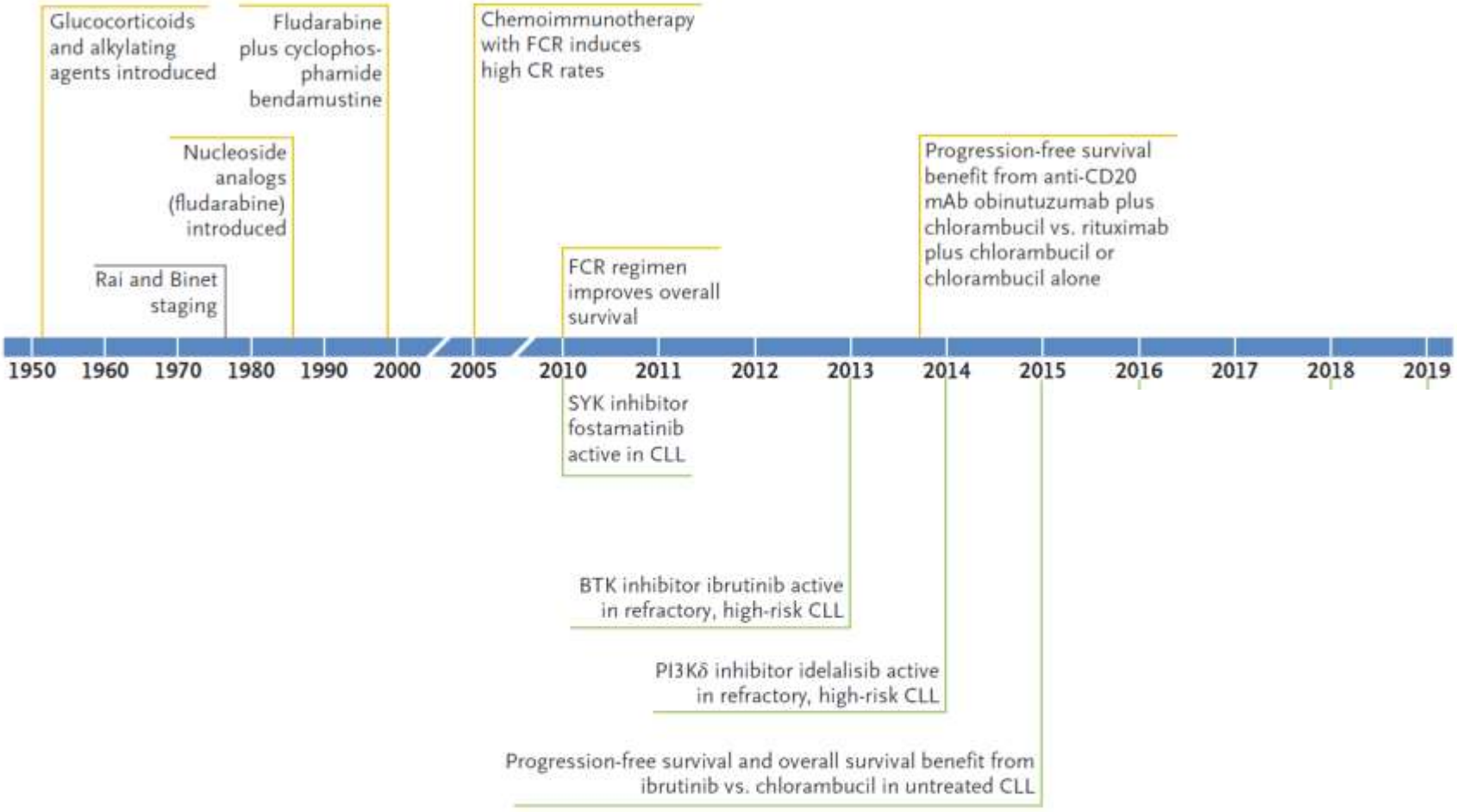

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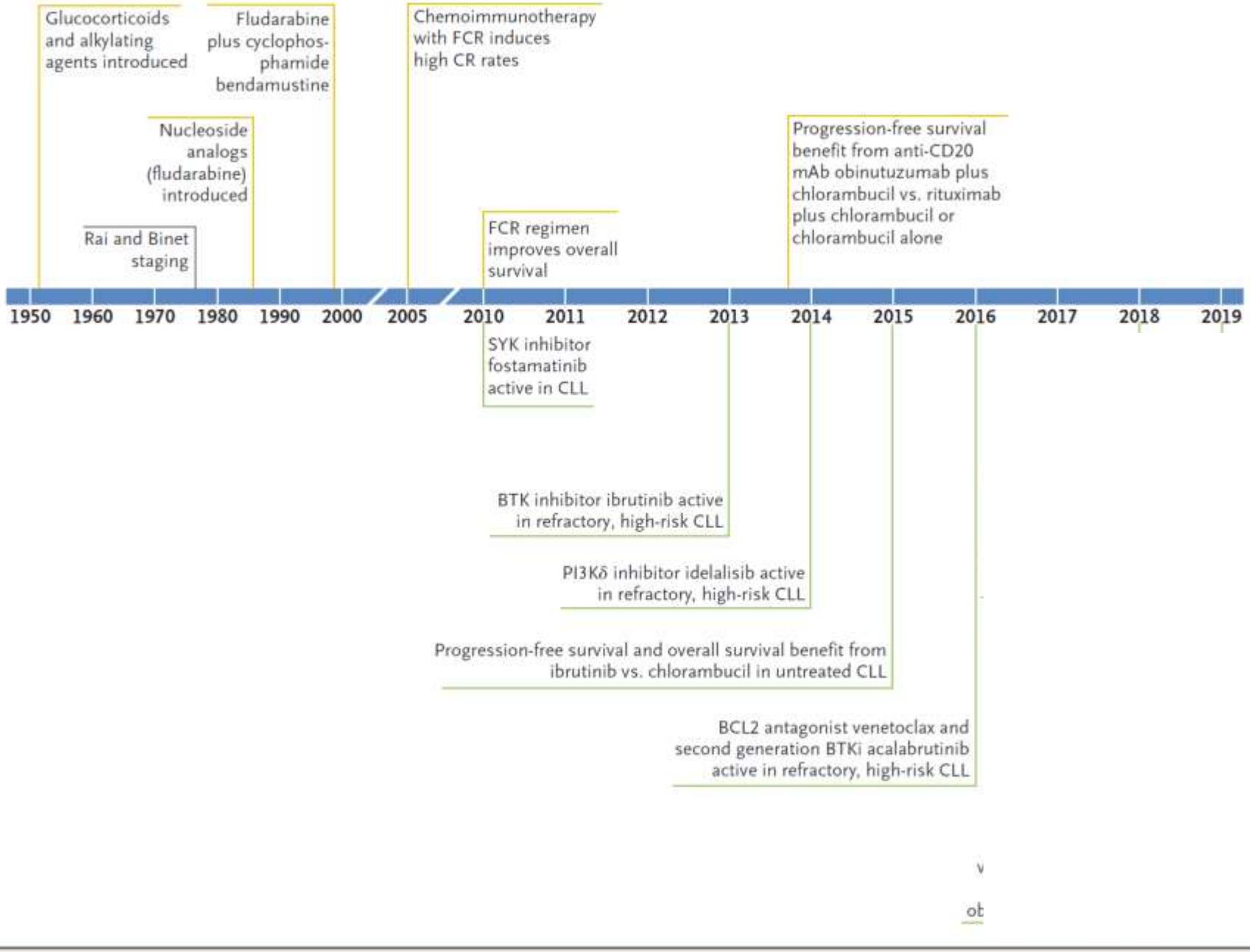

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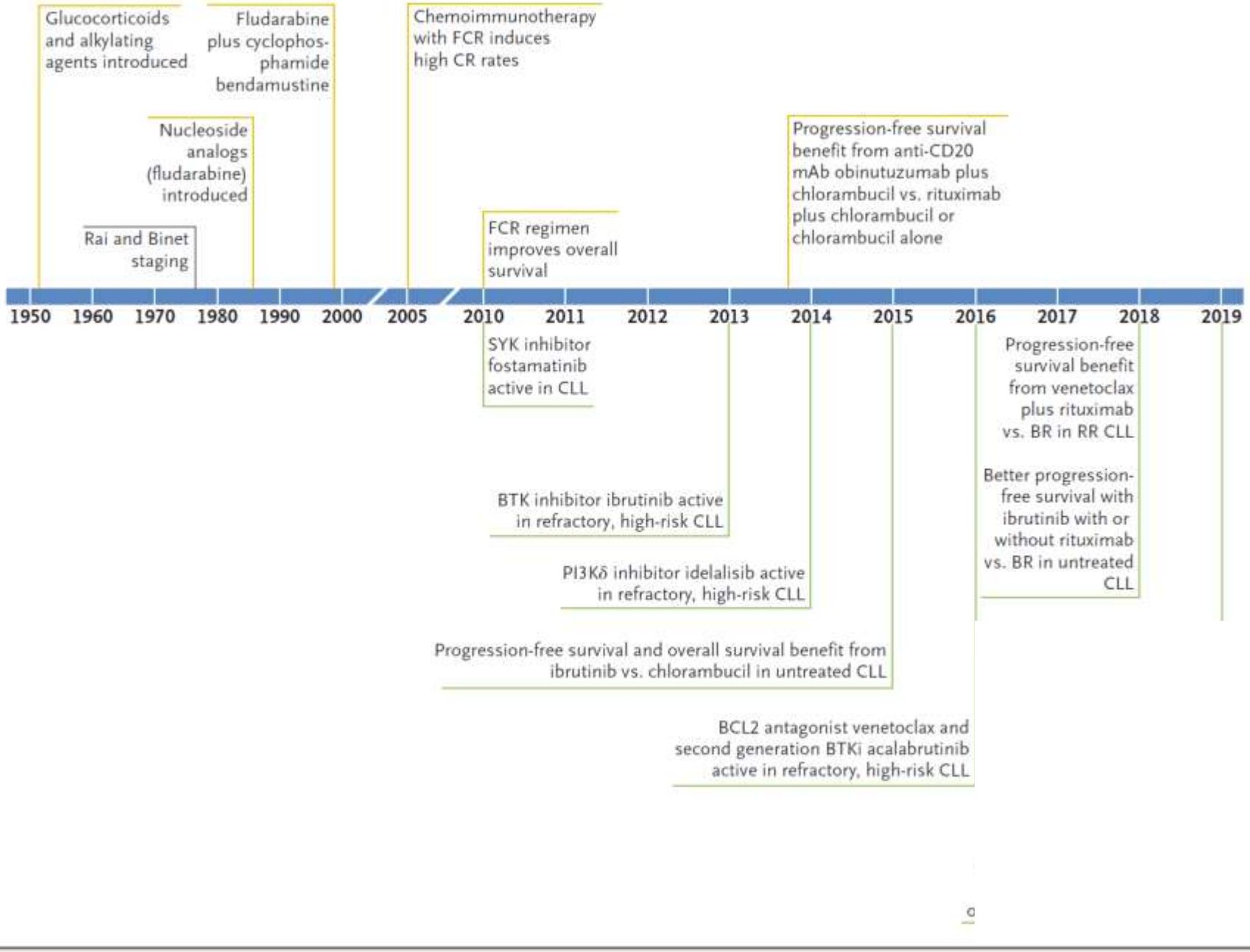

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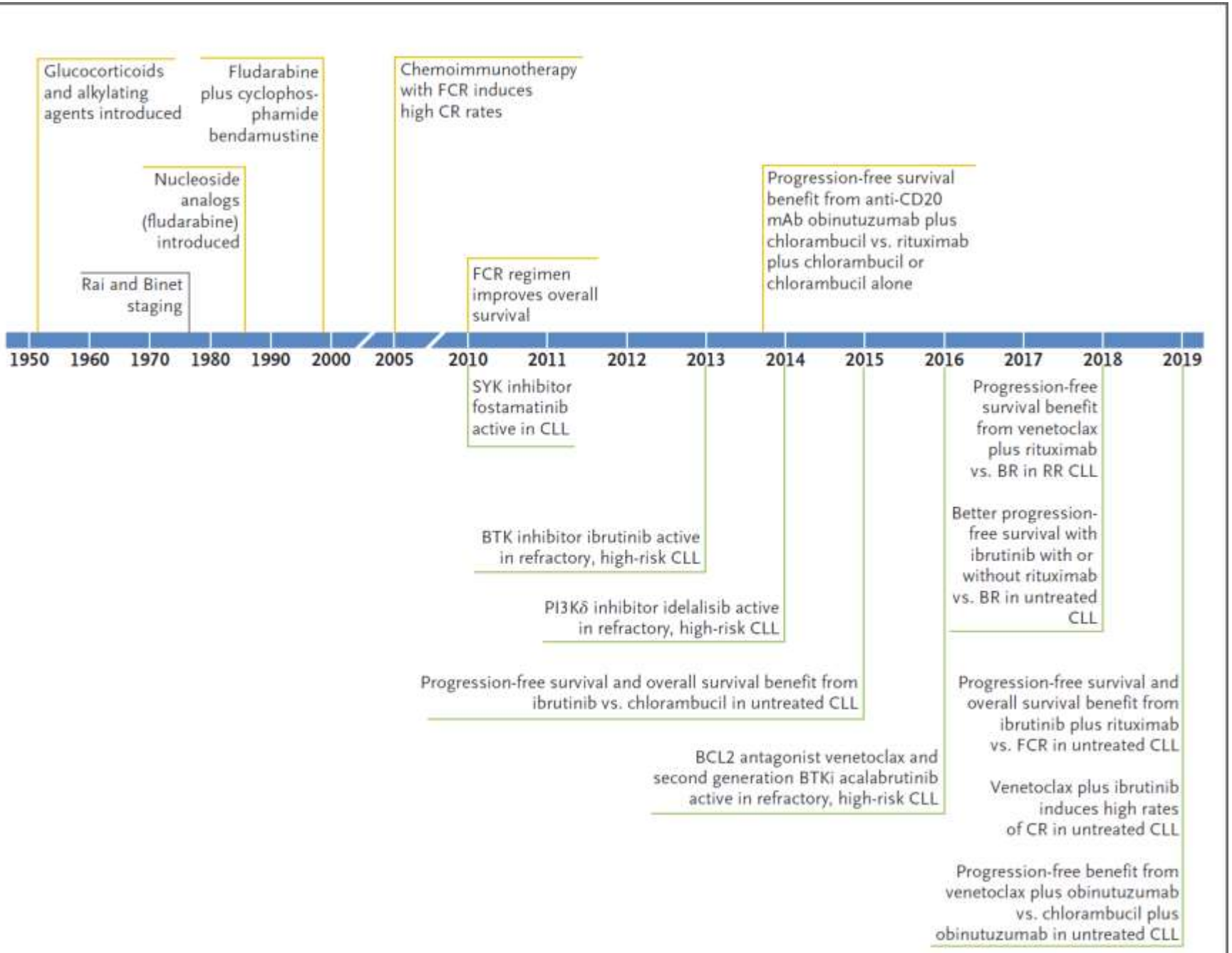

Figure 4. Milestones in Clinical CLL Research.

How do you tailor treatment

Risk stratification

Table 1 The CLL-International Prognostic Index[30]

Prognostic factor	Points
Del17p on FISH or *TP53* mutation	4
Unmutated *IGHV* genes	2
Serum β2 microglobulin >3.5 mg/L	2
Rai stage I–IV	1
Age >65 years	1

Cumulative CLL-IPI score	Risk category	5-year TFS[a]
0–1	Low risk	78%
2–3	Intermediate risk	54%
4–6	High risk	32%
7–10	Very high risk	0%

FISH fluorescence in situ hybridization, *IGHV* immunoglobulin heavy chain gene, *TFS* treatment-free survival
[a]For the Mayo validation cohort

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2020, VOL. 61, NO. 6, 1512–1515

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Characteristics	This study ($n = 471$)	Meta-analysis CLL-IPI (1) ($n = 3472$)	p Value
Male	336 (71%)	2427 (70%)	NS
Female	135 (29%)	1077 (30%)	
Median age (years)	60	61	NS

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Age >65	120 (30%)	1077 (31%)	
Stage			NS
Rai 0	64 (14%)	386 (14%)	
Rai I + II	217 (46%)	1428 (50%)	
Rai III + IV	174 (40%)	1025 (36%)	
β2-microglobulin >3.5	141 (40%)	869 (34%)	NS

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Trisomy 12	27 (12%)	356 (12%)	
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IgHV/ LDT < 6	LDT < 6 (44.2%)	IgHV unmutated (60%)	.003
Risk stratification	$n = 218$	$n = 1214$	NS
Low	61 (28%)	341 (28%)	
Intermediate	72 (33%)	474 (39%)	
High	68 (31%)	337 (28%)	
Very high	17 (8%)	62 (5%)	

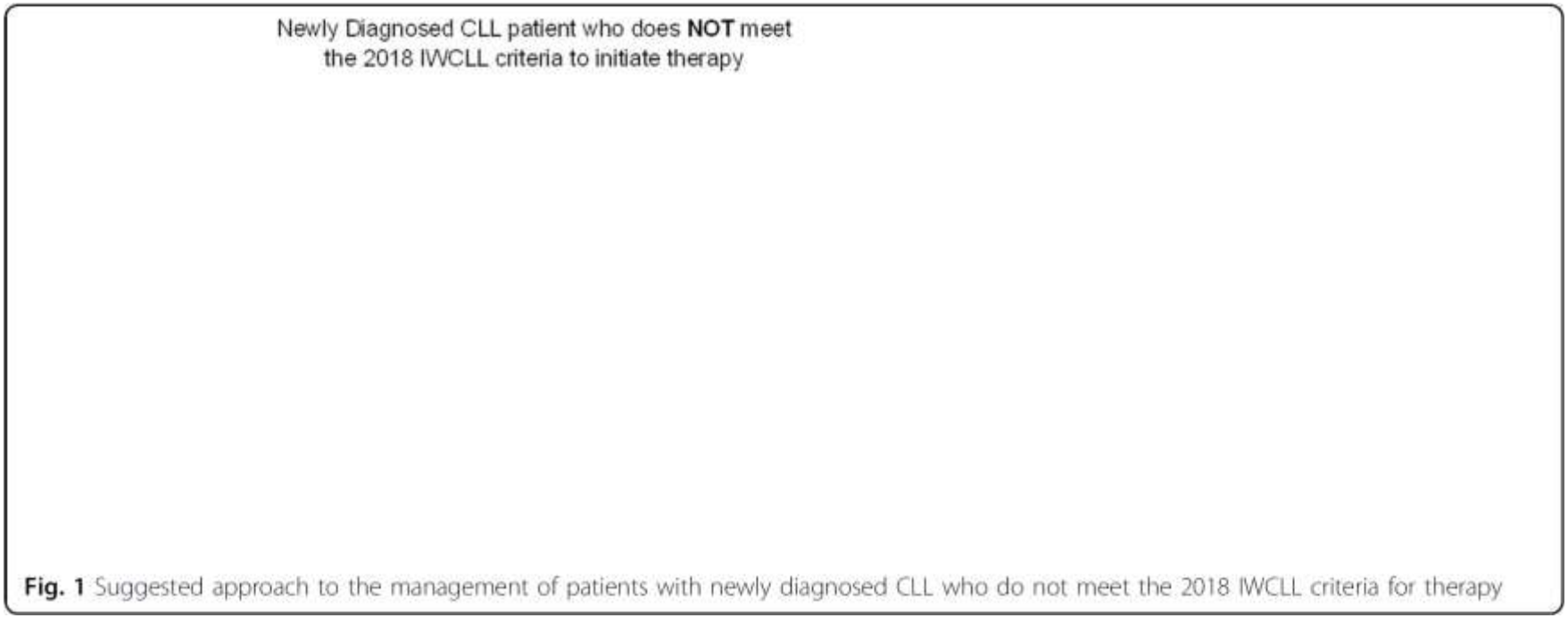
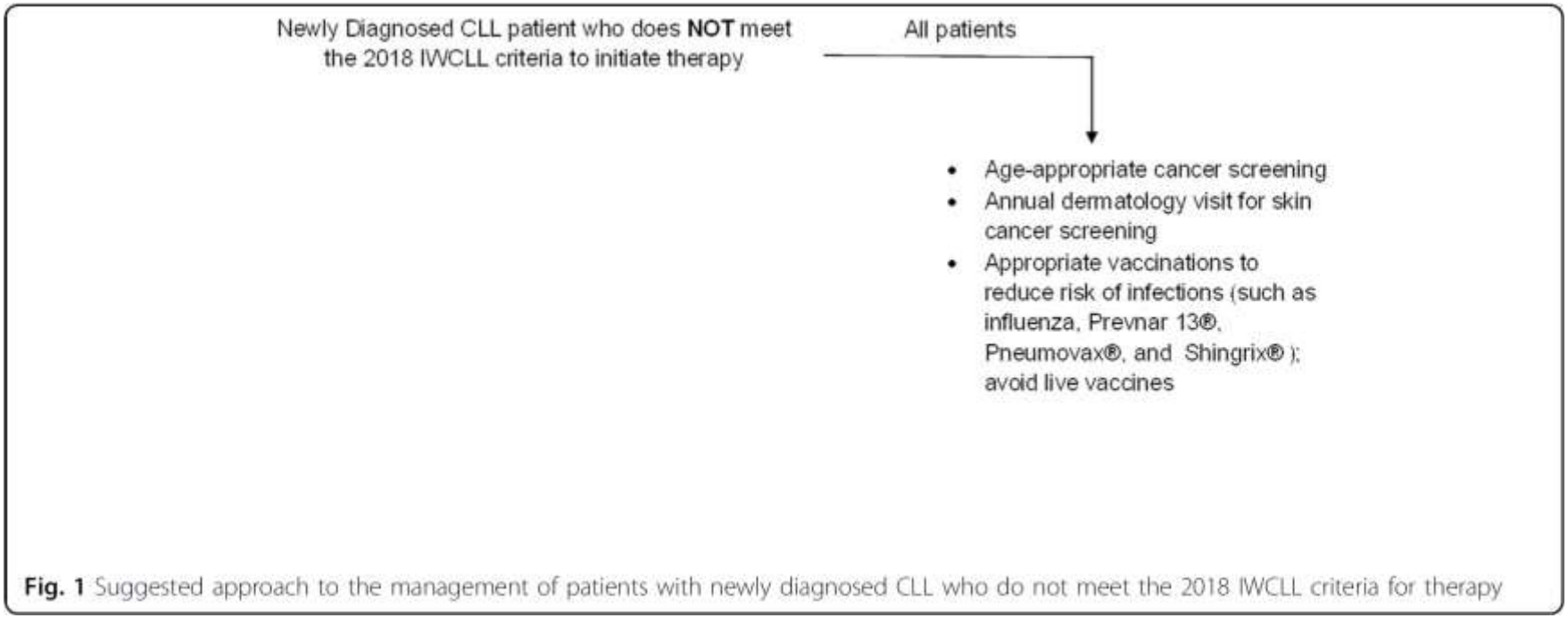


Fig. 1 Suggested approach to the management of patients with newly diagnosed CLL who do not meet the 2018 IWCLL criteria for therapy



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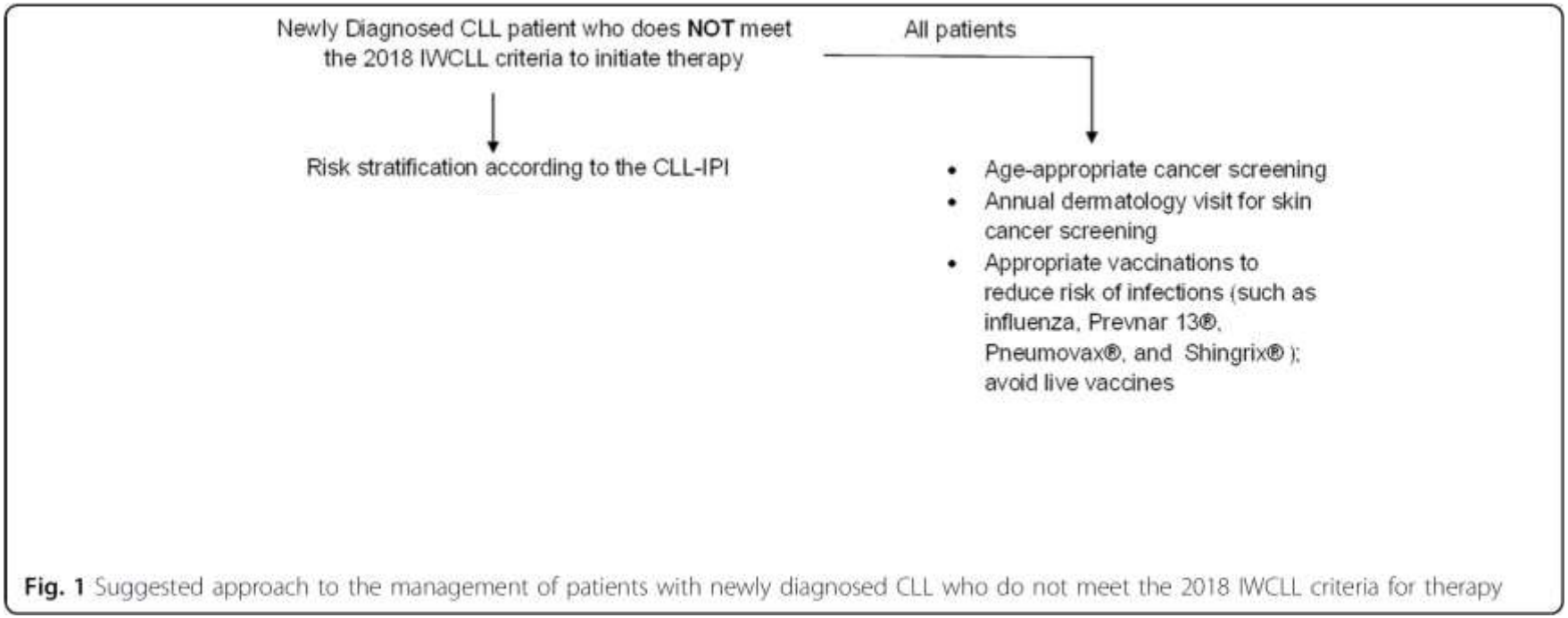

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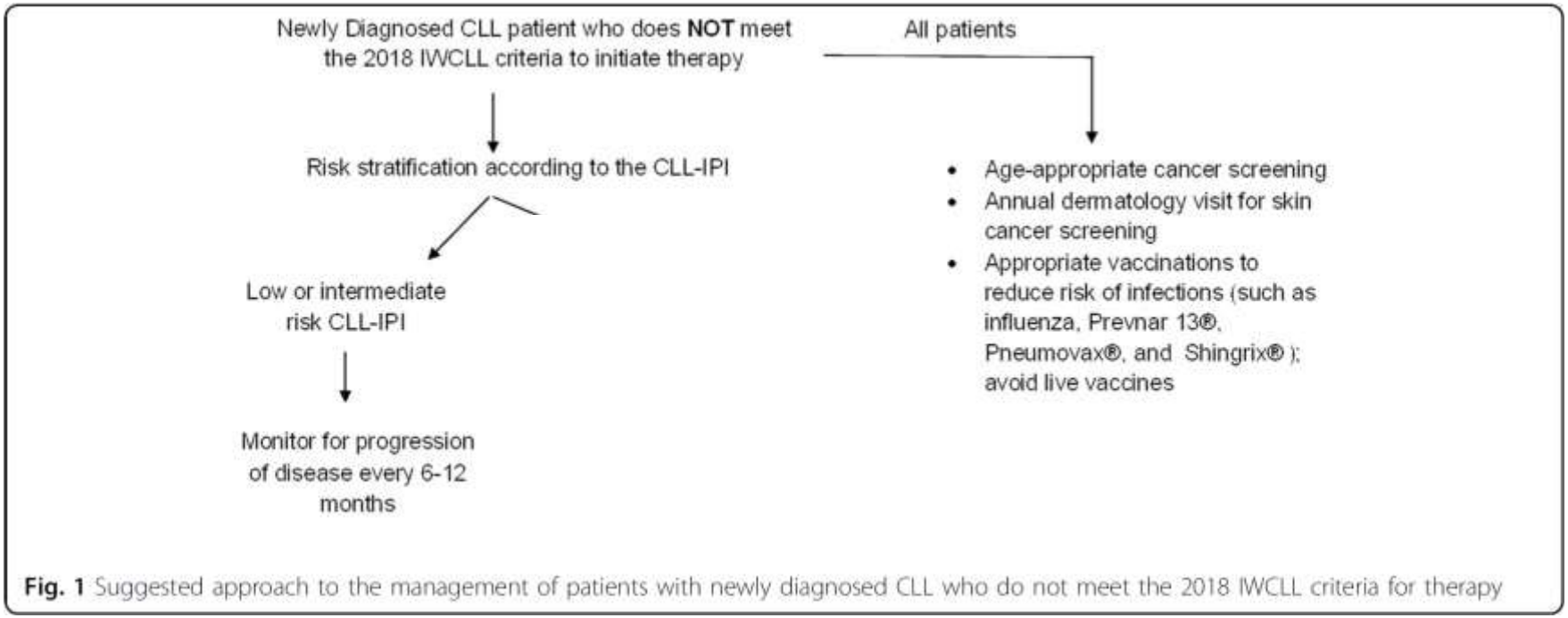

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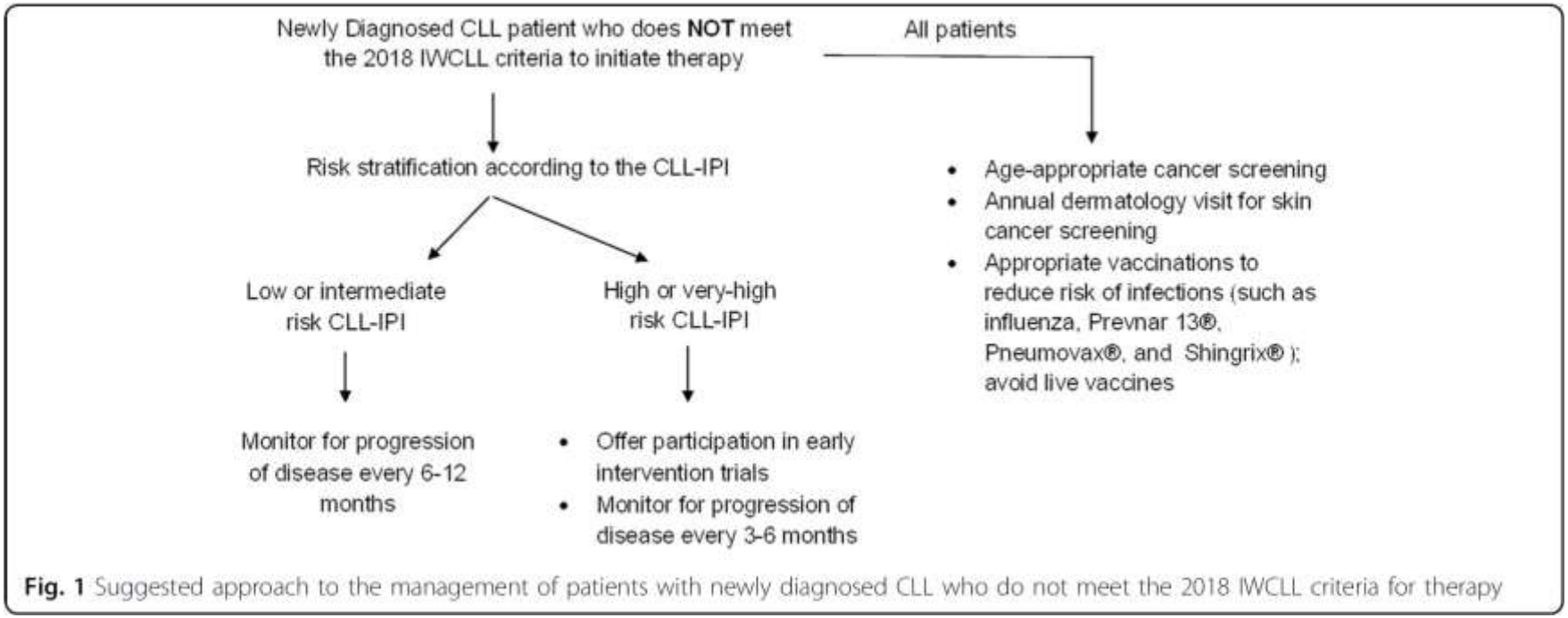

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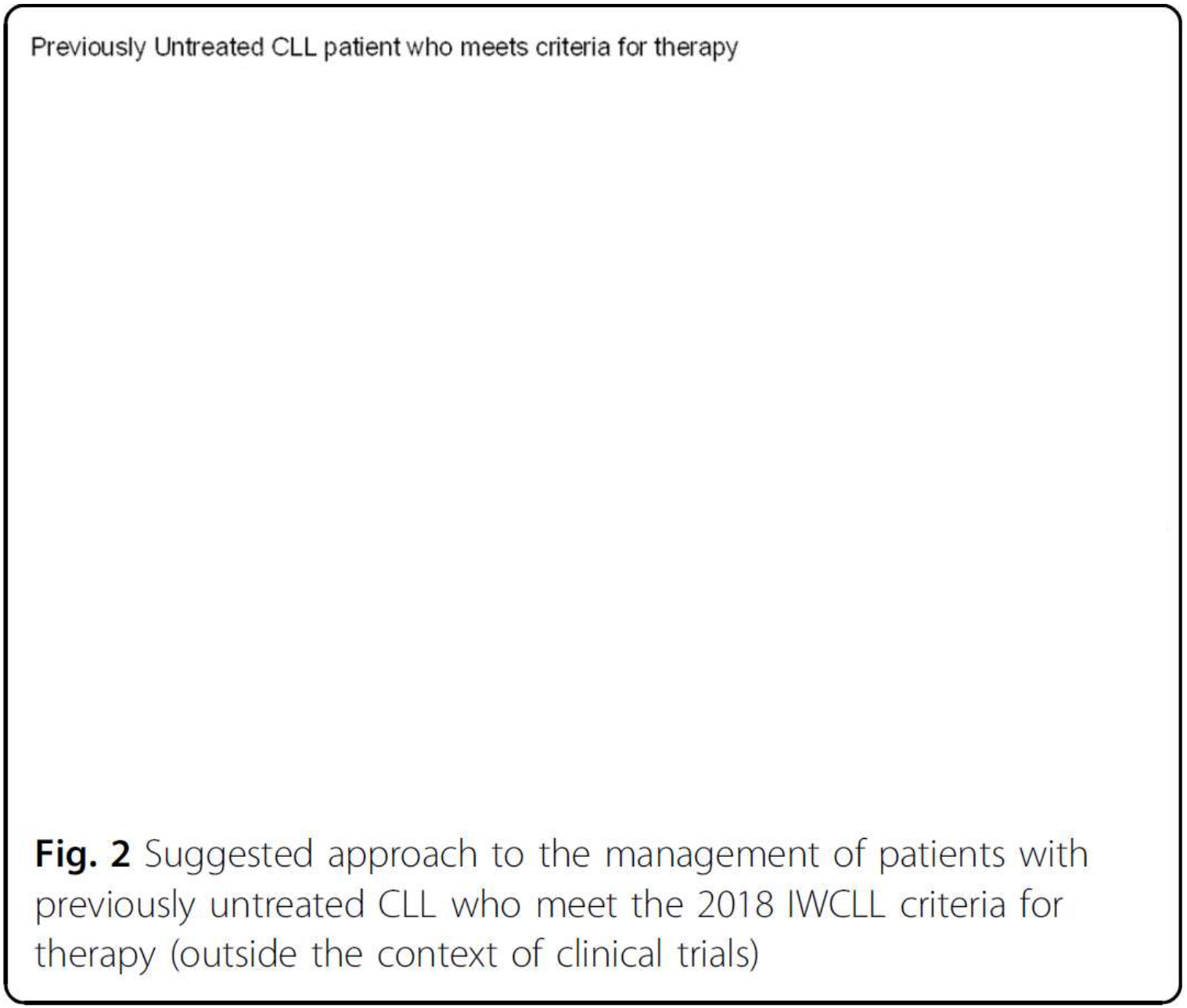
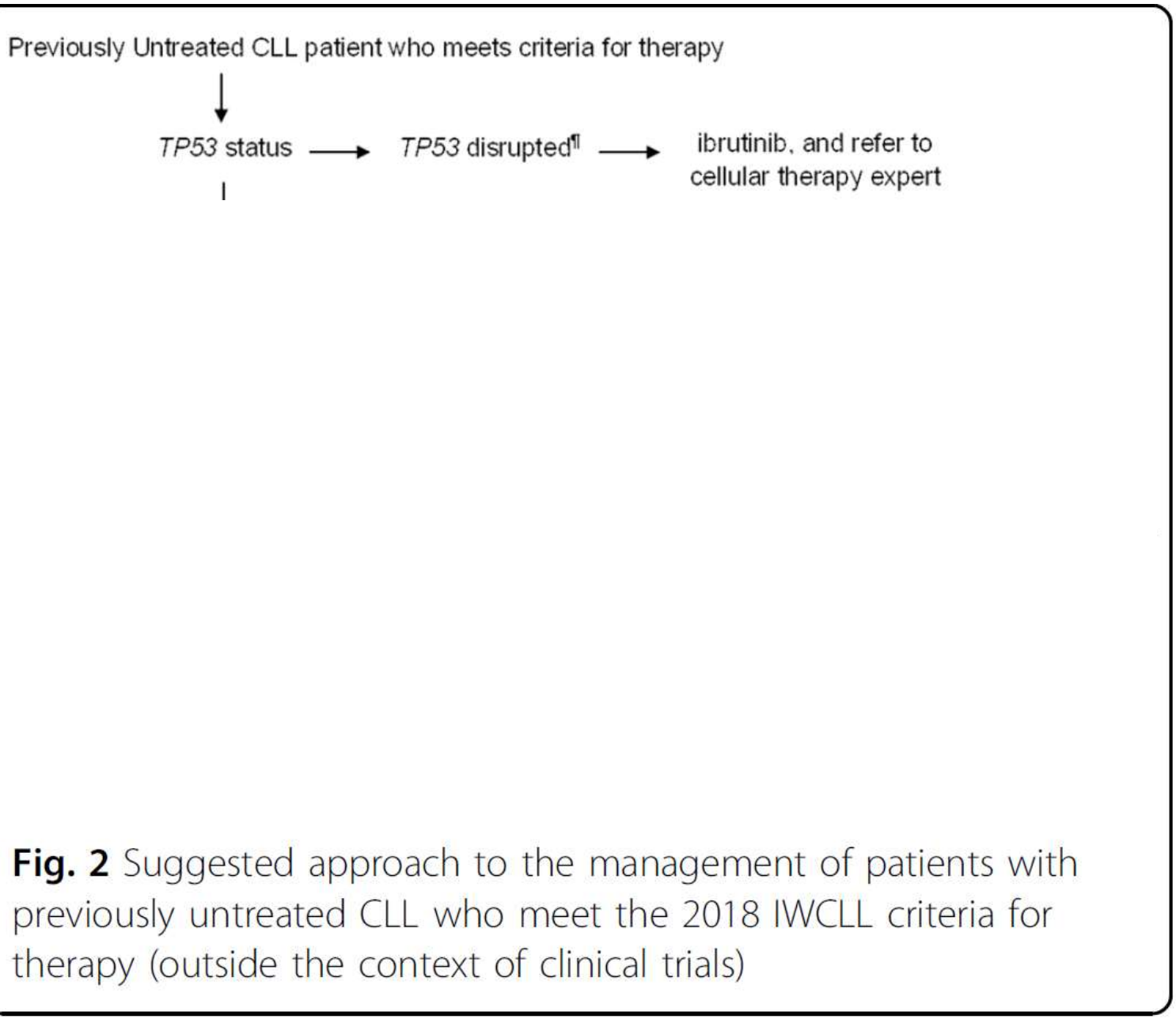


Fig. 2 Suggested approach to the management of patients with previously untreated CLL who meet the 2018 IWCLL criteria for therapy (outside the context of clinical trials)



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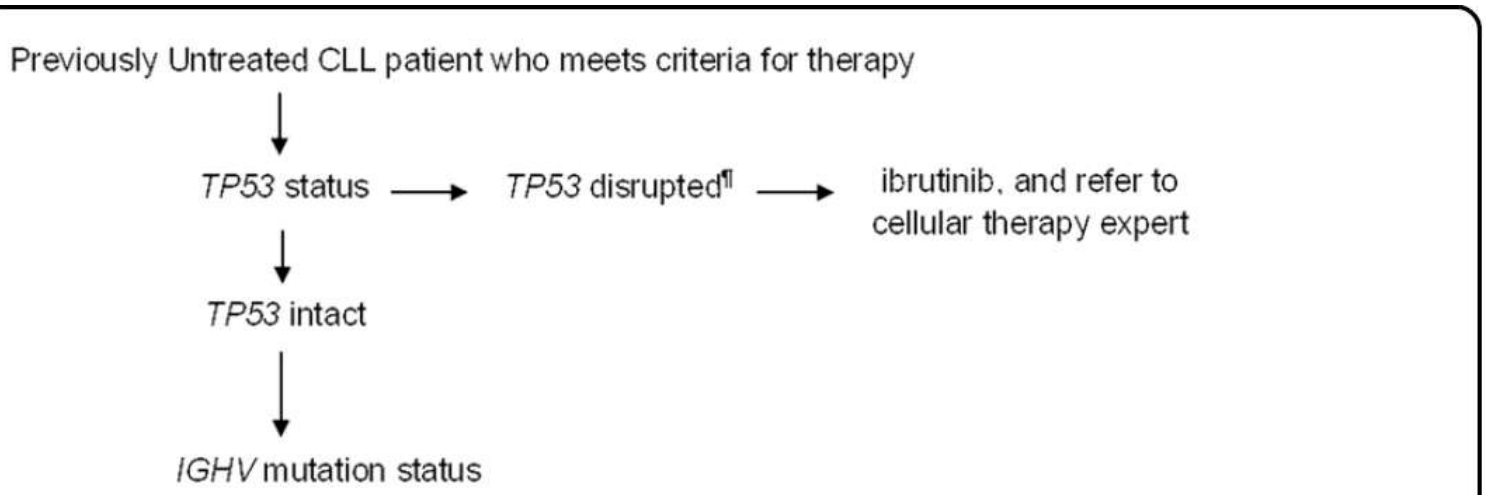

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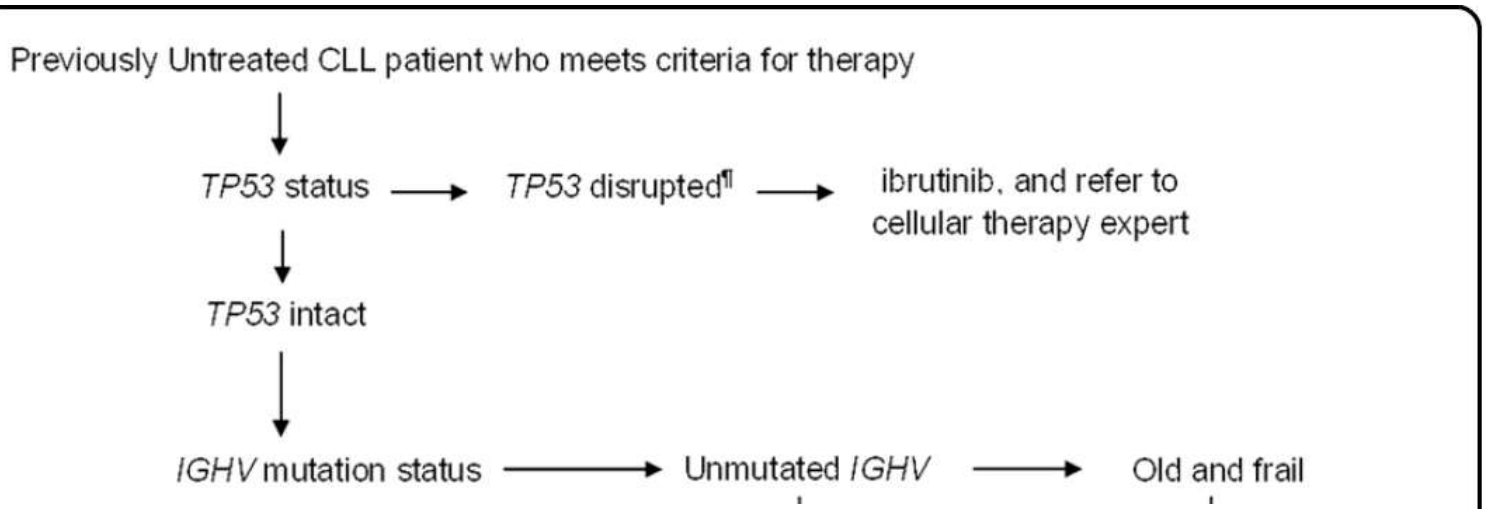

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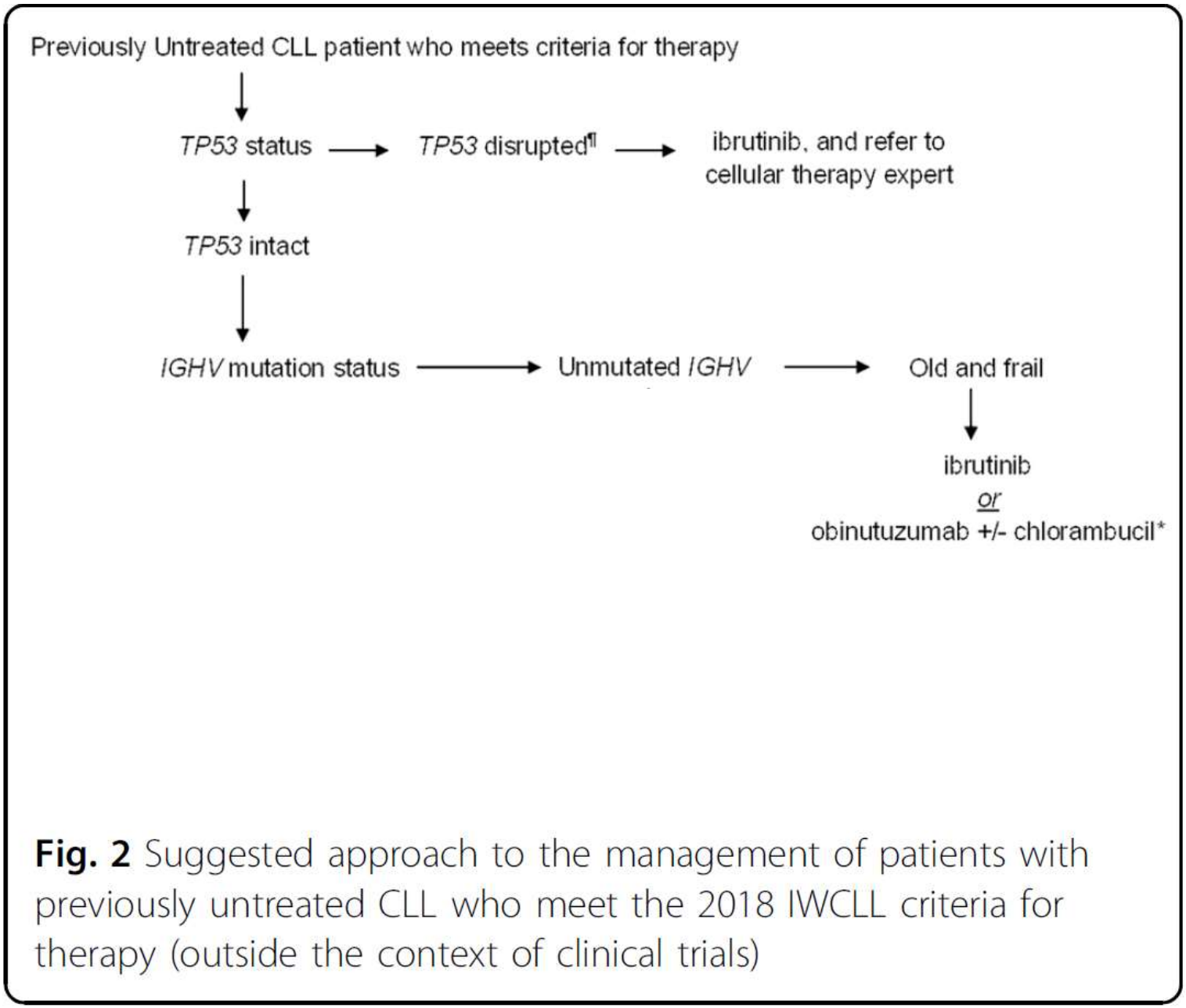

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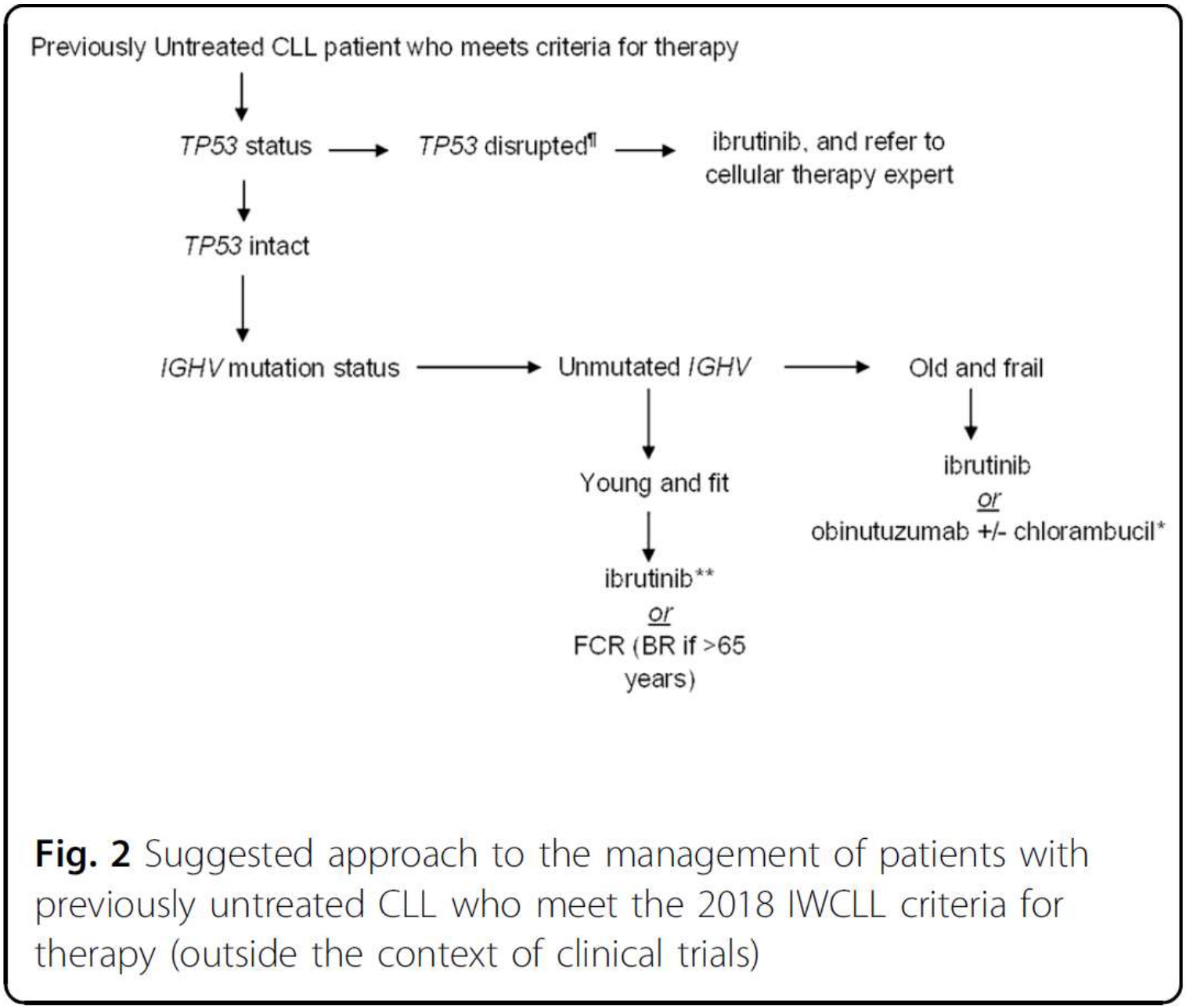

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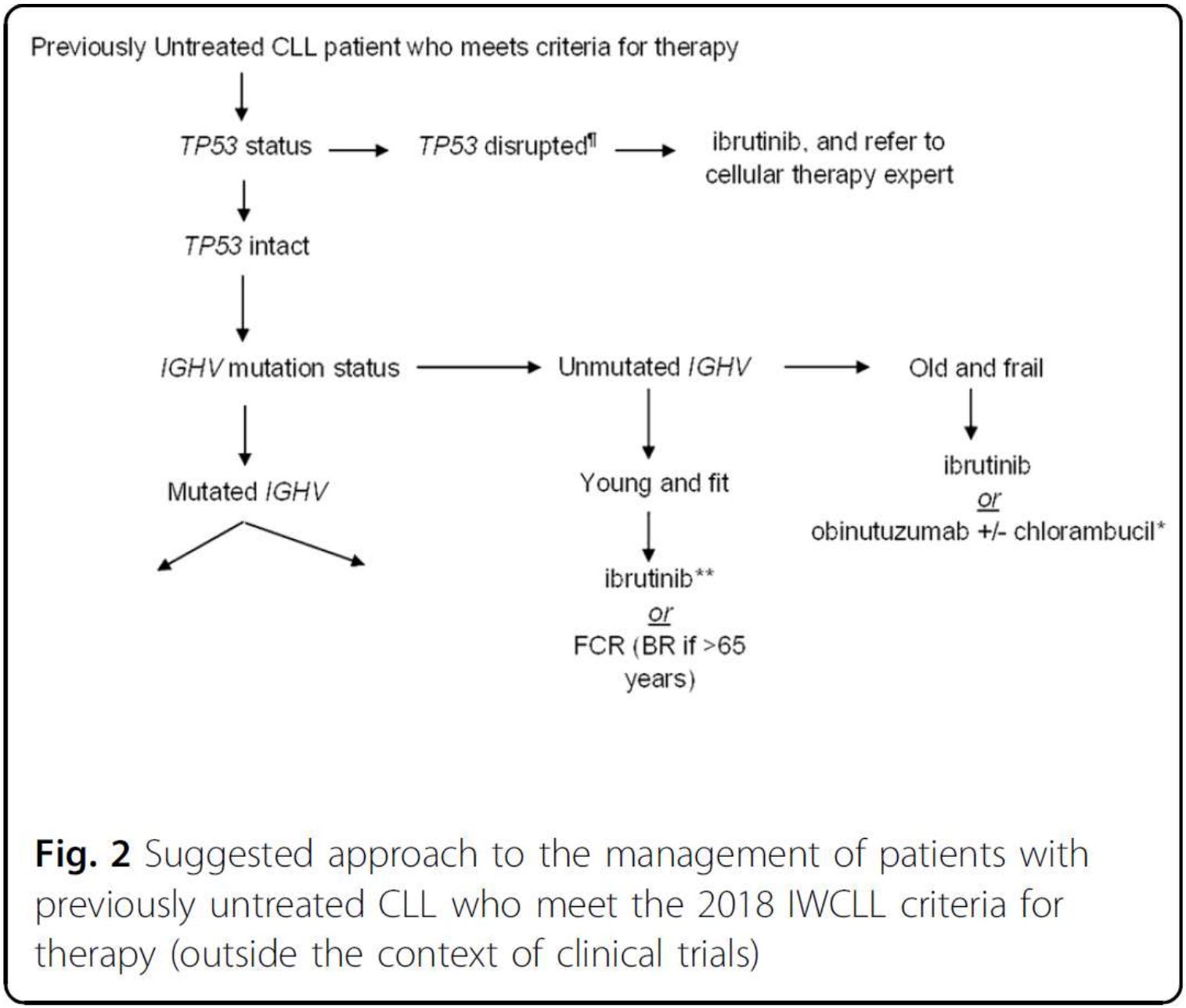

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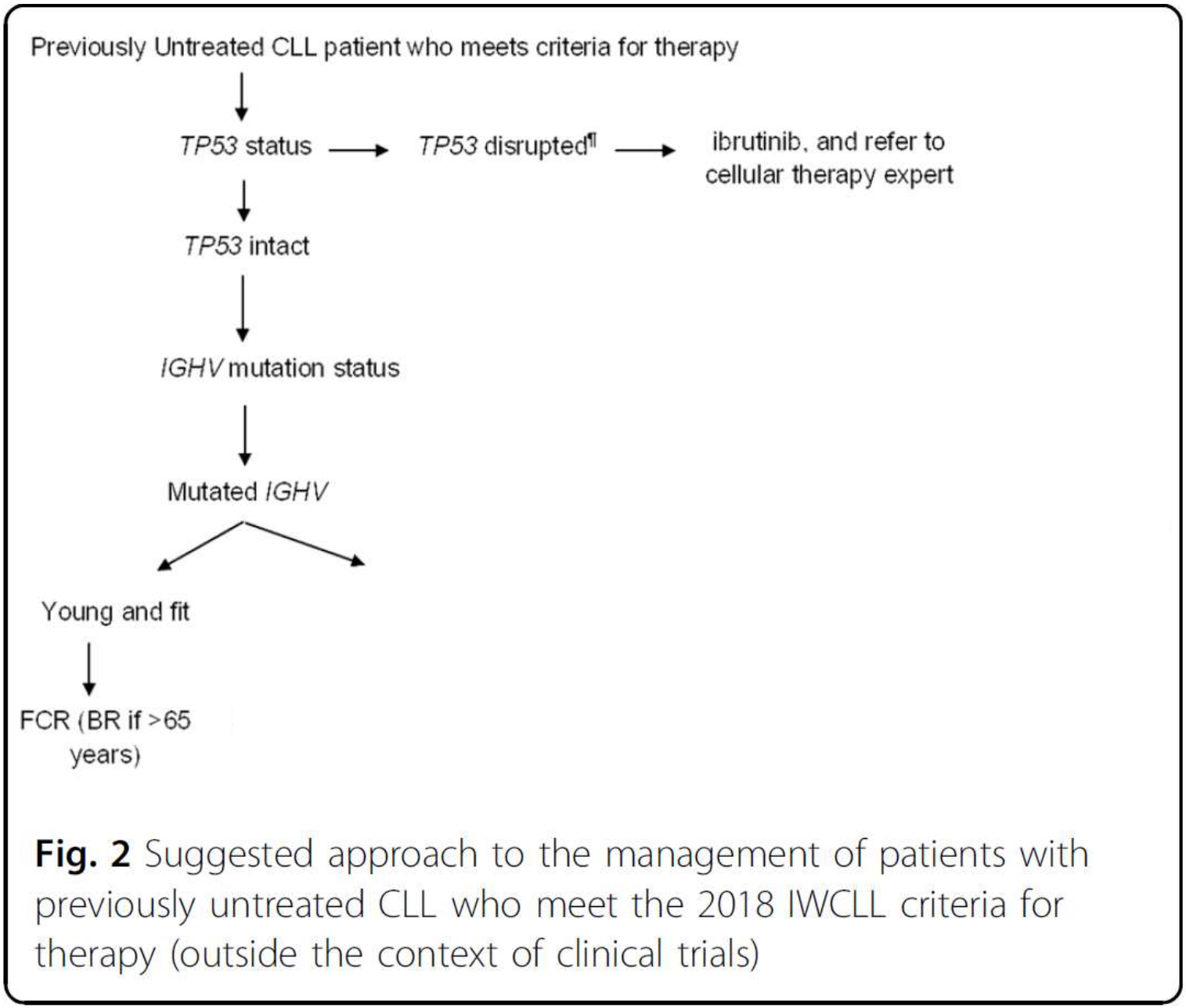

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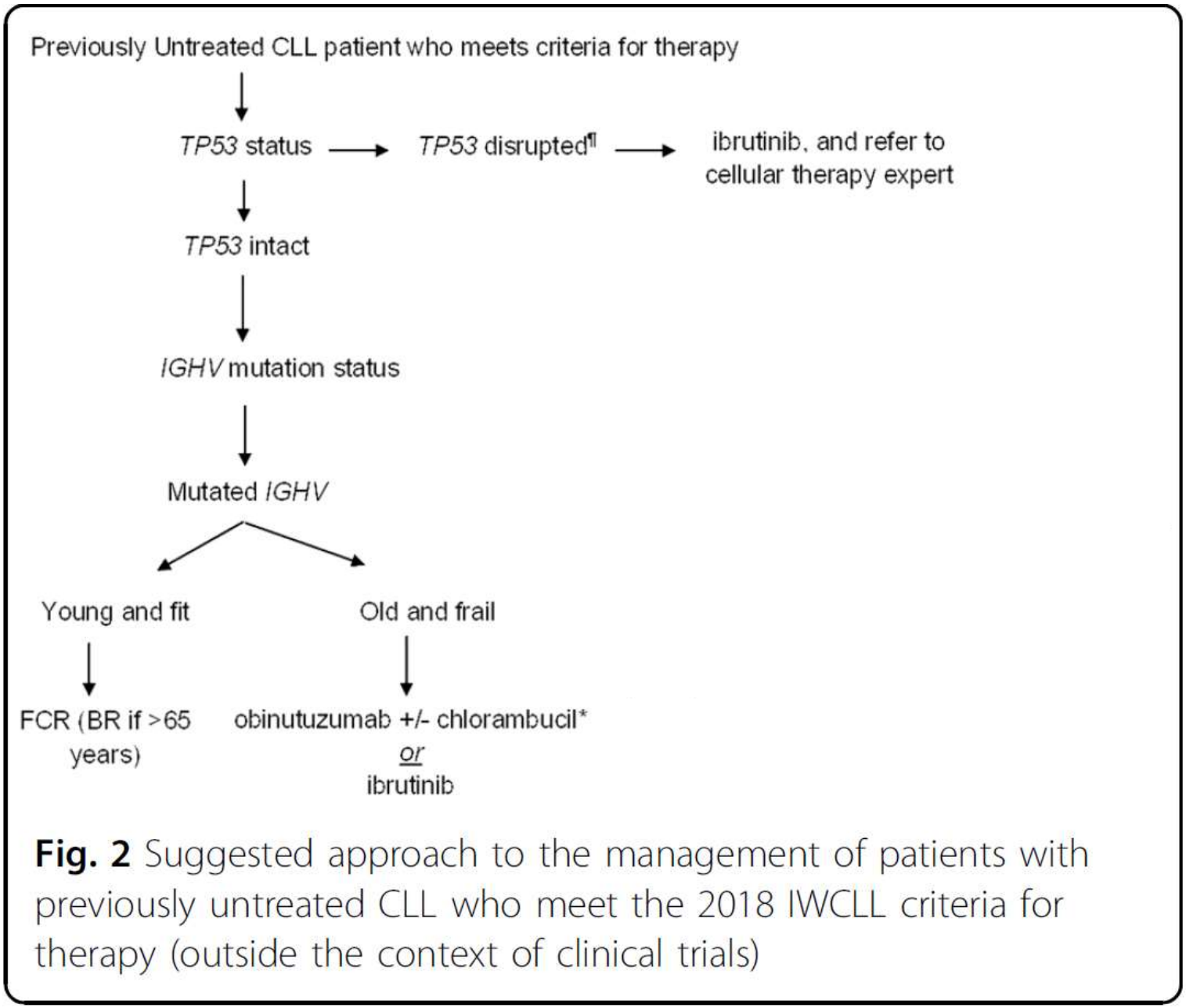

Fig. 2 Suggested approach to the management of patients with previously untreated CLL who meet the 2018 IWCLL criteria for therapy (outside the context of clinical trials)

CLL first line treatment

Stage	del(17p) or p53mut	Fitness	IGVH	Therapy
Binet A-B, Rai 0-II, inactive disease	Irrelevant	Irrelevant	Irrelevant	None

CLL first line treatment

Stage	del(17p) or p53mut	Fitness	IGVH	Therapy
Binet A-B, Rai 0-II, inactive disease	Irrelevant	Irrelevant	Irrelevant	None
Active disease or Binet C or Rai III-IV				

CLL first line treatment

Stage	del(17p) or p53mut	Fitness	IGVH	Therapy
Active disease or Binet C or Rai III-IV	Yes	Irrelevant	Irrelevant	Ibrutinib or Venetoclax + Obinutuzumab or Idelalisib + Rituximab (if contraindications for ibrutinib)*

CLL first line treatment

Stage	del(17p) or p53mut	Fitness	IGVH	Therapy
Active disease or Binet C or Rai III-IV	No	Go go	M	FCR (BR above 65 years) or ibrutinib*
			U	Ibrutinib or FCR (BR above 65 years)*

CLL first line treatment

Stage	del(17p) or p53mut	Fitness	IGVH	Therapy
Active disease or Binet C or Rai III-IV	No	Slow go	M	Venetoclax + Obinutuzumab or Chlorambucil + Obinutuzumab or Ibrutinib*
			U	Venetoclax + Obinutuzumab or Ibrutinib or Chlorambucil + Obinutuzumab*

* Consider and discuss with patient: long-term vs fixed (6-12 m) duration therapy, lack of convincing evidence of overall survival differences, specific side effects of each therapeutic option (myelosuppression, infections, secondary malignancies for CIT; cardiac toxicity, bleeding and autoimmune disease for Ibru; TLS and infections for Ven-Obi; autoimmune disease (diarrhea) and opportunistic infections for Idelalisib).

Table 1. Response Rates and Survival with Chemoimmunotherapy or Novel Agents for the Treatment of Chronic Lymphocytic Leukemia (CLL).*

Treatment	Disease State	Overall Response (Complete Remission)	Progression-free Survival	Overall Survival
		% (%)		
FCR	Previously untreated CLL[20]	90 (44)	Median, 56.8 mo	Median, 12.7 yr
BR	Previously untreated CLL[21]	96 (31)	Median, 41.7 mo	92% at 3 yr

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Chlorambucil plus obinutuzumab	Previously untreated CLL[22]	77.3 (22.3)	Median, 29.2 mo	NA
Ibrutinib	Relapsed or refractory CLL[19]	89 (10)	Median, 52 mo	55% at 7 yr
Ibrutinib	Previously untreated CLL[5,18]	92 (30)	70% at 5 yr	83% at 5 yr

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Ibrutinib	Previously untreated CLL[5,18]	92 (30)	70% at 5 yr	83% at 5 yr
Acalabrutinib	Relapsed or refractory CLL[4,23]	94	62% at 45 mo	>90% at 16 mo
Acalabrutinib	Previously untreated CLL[14]	86 (1)	82% at 30 mo	94% at 30 mo
Acalabrutinib plus obinutuzumab	Previously untreated CLL[14]	94 (13)	90% at 30 mo	95% at 30 mo

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Acalabrutinib plus obinutuzumab	Previously untreated CLL[14]	94 (13)	90% at 30 mo	95% at 30 mo
Venetoclax	Relapsed or refractory CLL[6]	79 (20)	Median, 25 mo	84% at 24 mo
Venetoclax plus rituximab	Relapsed or refractory CLL[7]	93.3 (26.8)	84.9% at 24 mo	92% at 24 mo
Venetoclax plus obinutuzumab	Previously untreated CLL[10]	84.7 (49.5)	88.2% at 24 mo	91.8% at 24 mo

Indian Scenario

Modified CLL International Prognostic Index (CLL-LIPI) using lymphocyte doubling time (LDT) in place of IgHV mutation status in resource-limited settings predicts time to first treatment and overall survival

Deepesh P. Lad[a], V. Tejaswi[a], Nishant Jindal[a], Pankaj Malhotra[a], Alka Khadwal[a], Gaurav Prakash[a], Arihant Jain[a], Sreejesh Sreedharanunni[b], Manupdesh Singh Sachdeva[b], Shano Naseem[b], Neelam Varma[b] and Subhash Varma[a]

Leukemia & Lymphoma

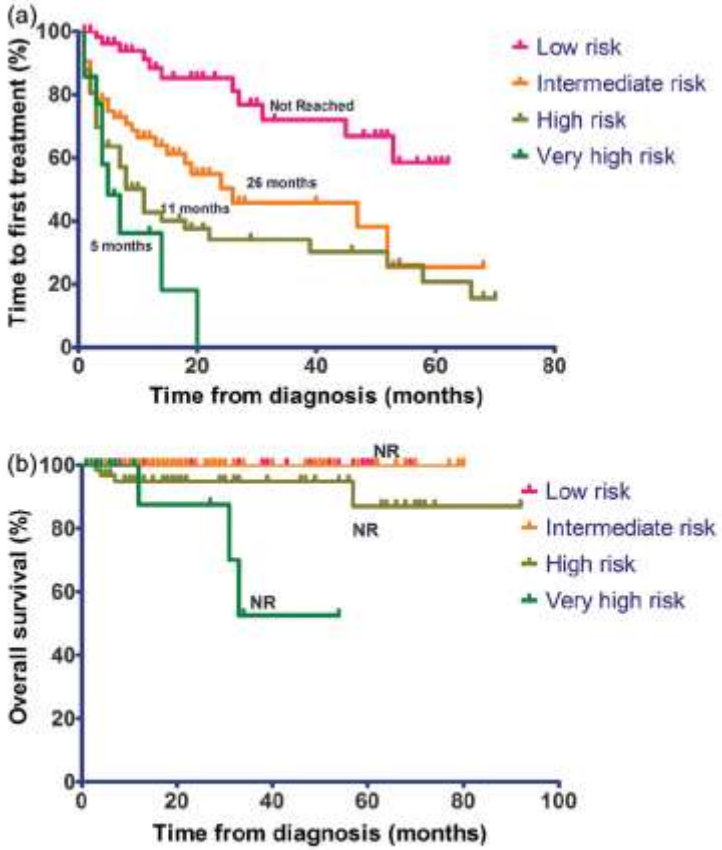

Figure 1. (a) Time to first treatment according to the CLL-LIPI risk groups. (b) Overall survival according to the CLL-LIPI risk groups.

JCO Global Oncol 6:866-872. © 2020 by American Society of Clinical Oncology

Chronic Lymphocytic Leukemia: Real-World Da From India

V. Tejaswi, MBBS, MD[1]; Deepesh P. Lad, MD, DM[1]; Nishant Jindal, MD[1]; Gaurav Prakash, MD, DM[1]; Pankaj Malhotra, MD[1]; Alka Khadwal, MD[1]; Arihant Jain, MD, DM[1]; Sreejesh Sreedharanunni, MD, DM[2]; Manupdesh Singh Sachdeva, MD[2]; Shano Naseem, MD[2]; Neelam Varma, MD[2]; and Subhash Varma, MD[1]

METHODS This was a prospective study (2011-2017) of consecutively diagnosed patients with CLL at a single

TABLE 2. Demographic and Clinical Characteristics of Patients With Chronic Lymphocytic Leukemia at Diagnosis (N = 409)

Characteristic	No. (%)
Age at diagnosis, years	
≤ 55	130 (31.8)
> 55	279 (68.2)
> 60	210 (51.3)
> 70	62 (15.1)
Sex	
Male	289 (70.6)
Female	120 (29.4)
Socioeconomic status	
Middle to high	213 (52.1)
Low	196 (47.9)

Presentation	
Asymptomatic	173 (42.3)
Lymphadenopathy	117 (28.6)
B symptoms	58 (14.2)
Others	61 (14.9)
ECOG performance status	
0-1	308 (75.3)
2-4	101 (24.7)
CIRS	
< 3	232 (56.7)
≥ 3	177 (43.3)
CIRS by age, years, median (range)	
≤ 55	4 (0-11)
> 55	6 (0-16), $P < .0001$

Rai stage	
0	49 (12)
I	82 (20)
II	104 (25.4)
III	85 (20.8)
IV	89 (21.8)

FISH (n = 218)	
Deletion (17p)	23 (10.5)
Deletion (11q)	20 (9.2)
Deletion (13q)	61 (28)
Trisomy 12	27 (12.4)
Normal	59 (27.1)
No del 11q/ 17p	28 (12.8)
β_2 microglobulin (n = 348)	
< 3.5	207 (59.5)
≥ 3.5	141 (40.5)
LDT (n = 319)	
≤ 6 months	141 (44.2)
> 6 months	178 (55.8)

BLOOD RESEARCH
VOLUME 55 · NUMBER 3
September 2020
ORIGINAL ARTICLE

Genomic alterations in chronic lymphocytic leukemia and their correlation with clinico-hematological parameters and disease progression

Vishrut K. Srinivasan[1], Shano Naseem[1], Neelam Varma[1], Deepesh P. Lad[2], Pankaj Malhotra[2]
Departments of [1]Hematology and [2]Internal Medicine, Postgraduate Institute of Medical Education and Research, Chandigarh, India

Table 2. Cytogenetic abnormalities and somatic mutations detected by MLPA (N=52).

13q14 deletion, N (%)	22 (42.3%)
Trisomy 12, N (%)	7 (13.4%)
11q (*ATM*) deletion, N (%)	5 (9.6%)
17p (*TP53*) deletion, N (%)	2 (3.8%)
No abnormality, N (%)	18 (34.6%)
Two abnormalities, N (%)	6 (11.5%)
NOTCH1 c.7541_7542delCT mutation	1 (1.9%)
MYD88 L265P mutation	0 (0.0%)
SF3B1 K700E mutation	0 (0.0%)

Chronic Lymphocytic Leukemia: Real-World Da From India

V. Tejaswi, MBBS, MD[1]; Deepesh P. Lad, MD, DM[1]; Nishant Jindal, MD[1]; Gaurav Prakash, MD, DM[1]; Pankaj Malhotra, MD[1]; Alka Khadwal, MD[1]; Arihant Jain, MD, DM[1]; Sreejesh Sreedharanunni, MD, DM[2]; Manupdesh Singh Sachdeva, MD[2]; Shano Naseem, MD[2]; Neelam Varma, MD[2]; and Subhash Varma, MD[1]

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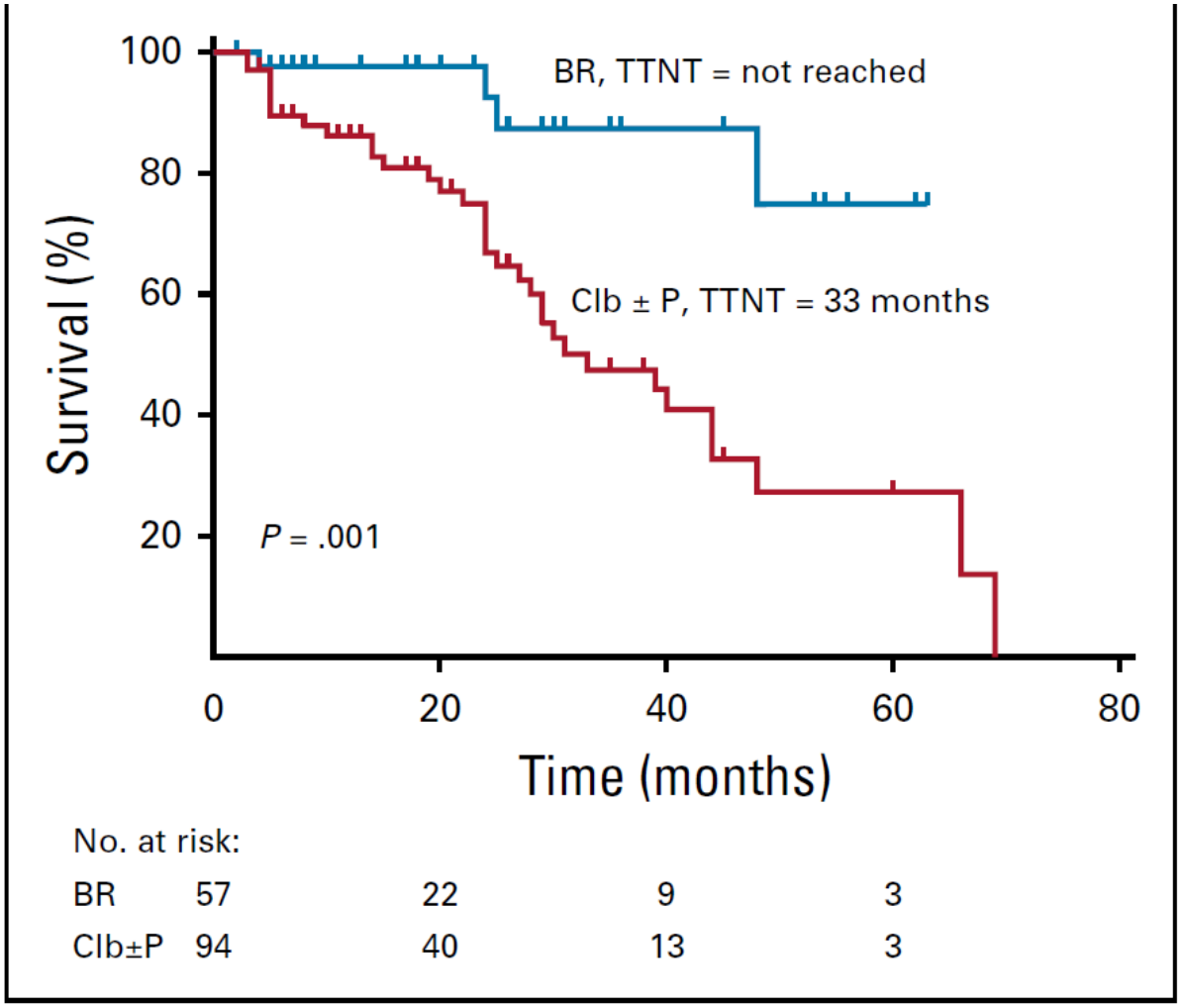

FIG 1. Time to next treatment (TTNT) after first-line therapy. BR, bendamustine + rituximab; Clb, chlorambucil; P, prednisolone.

TABLE 3. Treatment Outcomes and Toxicity With Front-Line Clb and BR

Outcome or Toxicity	BR (n = 57; 31.6%)	Clb ± P (n = 94; 52.2%)
CRu	44 (77.2)	3 (3.2)
PR	8 (14)	67 (71.3)
ORR	52 (91.2)	70 (74.5)
SD	3 (5.3)	20 (21.2)
PD	2 (3.5)	4 (4.3)

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ORR	52 (91.2)	70 (74.5)
SD	3 (5.3)	20 (21.2)
PD	2 (3.5)	4 (4.3)
Neutropenia grade 3/4	30 (52.6)	10 (10.6)
Anemia grade 3/4	8 (14.0)	5 (5.3)
Thrombocytopenia grade 3/4	3 (5.2)	5 (5.3)
Infection grade 3/4/5	22 (38.6)	0
Deaths	3 (5.3)	7 (7.4)
Median TTNT	NR	33
Median OS	NR	NR

TABLE 4. Comparison of the Treatment Outcomes of BR With Clinical Trial and Real-World Data

BR	Present Study (n = 57)	Eichhorst et al[17] (n = 279)	Kleeberg et al[18] (n = 249, age < 70 years)
Neutropenia grade 3/4, %	52.6	59	24.0
Anemia grade 3/4, %	14.0	11	5.6
Thrombocytopenia grade 3/4, %	5.2	14	9.6
Infection grade 3/4/5, %	38.5	26	3.2

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BR	Present Study (n = 57)	Eichhorst et al[17] (n = 279)	Kleeberg et al[18] (n = 249, age < 70 years)
ORR, %	91.2	96	89.9
CR, %	77.2 (CRu)	31	44.9
Median follow-up, months	30.0	36	28.0
Median TTNT/PFS, months	NR (TTNT)	42 (PFS)	36.7 (PFS)
Median OS	NR	92% at 3 years	77% at 3 years
Neutropenia grade 3/4, %	52.6	59	24.0
Anemia grade 3/4, %	14.0	11	5.6
Thrombocytopenia grade 3/4, %	5.2	14	9.6
Infection grade 3/4/5, %	38.5	26	3.2

TABLE 5. Comparison of the Treatment Outcomes of Clb ±P With Clinical Trial Data

Clb ± P	Present Study (n = 94)	Eichhorst et al[26] (n = 100)	Catovsky et al[27] (n = 387)
Clb dose	10 mg/m^2 ± prednisolone 60 mg/m^2 D1-5	0.4-0.8 mg/kg D1 & 15	10 mg/m^2 D1-7
ORR, %	74.5	51	72.0
CR, %	3.2	0	7.0
Median TTNT/PFS	33 (TTNT)	18 (PFS)	20 (PFS)
Median OS	NR	64	54% at 5 years
Neutropenia grade 3/4, %	10.6	12	10.6
Anemia grade 3/4, %	5.3	27	0
Thrombocytopenia grade 3/4, %	5.3	20	7.9
Infection grade 3/4, %	0	4	3.0

TABLE 6. Direct Costs for Diagnosis, Investigations, and Treatment of Chronic Lymphocytic Leukemia in India and United States

Direct Cost	India	United States[21]
Diagnosis	$80	—
Prognosis (FISH + IgHV + β2m)	$150	—
Treatment		
BR regimen (6 cycles)	$2,300	$94,754
Chlorambucil (12 cycles)	$120	$9,348
Ibrutinib (1 month)	$2,000	$10,270

CONCLUSION Indian patients with CLL are younger in chronological age but have higher morbidity burden. Treatment outcomes with biosimilar fixed-dose BR are comparable to those reported in the literature. Chlorambucil is still a valid option, given the economic burden of the disease and treatment.

Indian J Hematol Blood Transfus (Apr-June 2019) 35(2):260–264

Reduced Dose Ibrutinib Due to Financial Toxicity in CLL

Deepesh P. Lad[1] · Pankaj Malhotra[1] · Alka Khadwal[1] · Gaurav Prakash[1]
Arihant Jain[1] · Subhash Varma[1]

2016 to April 2018. Reduced dose ibrutinib was defined as a sustained ($\geq$ 12 months) dosing at $<$ 420 mg/day, either at treatment initiation or within 3 months from starting therapy. Progression free survival was compared using

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Reduced Dose Ibrutinib Due to Financial Toxicity in CLL

Deepesh P. Lad[1] · Pankaj Malhotra[1] · Alka Khadwal[1] · Gaurav Prakash[1] Arihant Jain[1] · Subhash Varma[1]

Table 2 Comparison of patients taking a reduced dose and standard dose ibrutinib

	Reduced dose ibrutinib (n = 3)	Standard dose ibrutinib (n = 12)	*p* value
Age (years) median ± SD	60 ± 10.5	59.5 ± 10.1	NS
FISH (n)			NS
del. 17p	1	2	
del. 11q	2	3	
Others	0	7	
Median no. of prior therapies (range)	2 (1–3)	1.5 (0–4)	NS
Median follow-up (months)	12	10	NS
Adverse events (≥ grade3)	0	4/14 (28.5%)	< 0.0001
ORR	100%	91.6%	NS
Median PFS	NR	NR	NS

the two groups. The overall response rate and median PFS were also not significantly different between the two groups. In the limited patient numbers and follow-up period we show that outcomes of reduced dose ibrutinib are comparable to standard dose ibrutinib but with fewer adverse events. This study provides a proof of concept that a subset of patients might do well on reduced dose ibrutinib.

CLINICAL TRIALS AND OBSERVATIONS

A pilot study of lower doses of ibrutinib in patients with chronic lymphocytic leukemia

Lisa S. Chen,[1,*] Prithviraj Bose,[2,*] Nichole D. Cruz,[2] Yongying Jiang,[3] Qi Wu,[3] Philip A. Thompson,[2] Shuju Feng,[4] Michael H. Kroll,[4] Wei Qiao,[5] Xuelin Huang,[5] Nitin Jain,[2] William G. Wierda,[2] Michael J. Keating,[2] and Varsha Gandhi[1,2]

KEY POINTS

- **A pilot trial evaluated stepwise reduction of ibrutinib dose in patients with CLL from 420 to 280 to 140 mg/d over three 28-day cycles.**
- **BTK occupancy, signaling, and biomarker data show that a lower dose of ibrutinib after 1 full dose cycle is enough for biological activity.**

Cancer Medicine. 2020;9:3390–3399.

The impact of dose modification and temporary interruption of ibrutinib on outcomes of chronic lymphocytic leukemia patients in routine clinical practice

Sameer A. Parikh[1] | Sara J. Achenbach[2] | Timothy G. Call[1] | Kari G. Rabe[2] | Wei Ding[1] | Jose F. Leis[3] | Saad S. Kenderian[1] | Asher A. Chanan-Khan[4] | Amber B. Koehler[1] | Susan M. Schwager[1] | Eli Muchtar[1] | Amie L. Fonder[1] | Kristen B. McCullough[5] | Adrienne N. Nedved[5] | Matthew D. Smith[5] | Susan L. Slager[2] | Neil E. Kay[1] | Heidi D. Finnes[5] | Tait D. Shanafelt[6]

2.38, $P = .015$) was associated with shorter OS. Initial ibrutinib dose and dose modification during therapy did not appear to impact EFS or OS. These findings illustrate

LEUKEMIA & LYMPHOMA
2019, VOL. 60, NO. 7, 1650–1655
https://doi.org/10.1080/10428194.2018.1554862

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ORIGINAL ARTICLE: CLINICAL

Dose reductions in ibrutinib therapy are not associated with inferior outcomes in patients with chronic lymphocytic leukemia (CLL)

Othman S. Akhtar[a], Kristopher Attwood[b], Ian Lund[c], Ryan Hare[d], Francisco J. Hernandez-Ilizaliturri[a,c] and Pallawi Torka[a,c]

[a]Department of Medicine, State University of New York at Buffalo, Buffalo, NY, USA; [b]Department of Biostatistics and Bioinformatics, Roswell Park Comprehensive Cancer Center, Buffalo, NY, USA; [c]Department of Medicine, Division of Lymphoma/Myeloma, Roswell Park Comprehensive Cancer Center, Buffalo, NY, USA; [d]Roswell Park Pharmacy, Roswell Park Comprehensive Cancer Center, Buffalo, NY, USA

Indian J Hematol Blood Transfus

Published online: 13 November 2020

Efficacy, safety, and quality of life of generic and innovator ibrutinib in Indian CLL patients

Charanpreet Singh[1] · Nishant Jindal[1] · Padma Youron[1] · Pankaj Malhotra[1] · Gaurav Prakash[1] · Alka Khadwal[1] · Arihant Jain[1] · Sreejesh Sreedharanunni[2] · Man Updesh Singh Sachdeva[2] · Shano Naseem[2] · Neelam Varma[2] · Subhash Varma[1] · Deepesh P. Lad[1]

[1] Department of Internal Medicine, Postgraduate Institute of Medical Education and Research, Chandigarh, India

[2] Department of Hematology, Postgraduate Institute of Medical Education and Research, Chandigarh, India

Variable		TN CLL (N = 7)	R/R CLL (N = 25)
Median follow-up (range) months		5 (1–37)	11 (1–43)
Age (median)		59 years (51–70)	61 years (37–84)
Gender		Males 6, Females 1	Males 16, Females 9
Rai stage	1	2 (28%)	6 (24%)
	2	3 (43%)	10 (40%)
	3	1 (14%)	7 (28%)
	4	1 (14%)	2 (8%)
FISH del 11q		2 (28%)	6 (24%)
FISH del 17p		4 (57%)	5 (20%)
CLL LIPI	Low	0	8 (32%)
	Intermediate	2 (28%)	7 (28%)
	High	2 (28%)	7 (28%)
	Very high	3 (43%)	3 (12%)
Ibrutinib	Innovator	5 (72%)	17 (68%)
	Generic	2 (28%)	8 (32%)
Response to ibrutinib	PR	7 (100%)	10 (40%)
	PRL	–	7 (28%)
	SD	–	4 (16%)
	PD	–	4 (16%)
Ibrutinib dose Reduction		1 (14%)	13 (52%)
Due to AE		1	10 (40%)
Due to financial reasons		–	3 (12%)
Grade 3/4 AE		–	13 (52%)
Infections			
Grade 3/4		–	6 (24%)
Grade 5		–	5 (20%)
Ibrutinib discontinuation			
Due to AE		–	
Due to PD		–	
Death		0	11 (44%)
Median PFS		Not reached	14 months

Variable		Innovator ibrutinib (N = 17)	Generic ibrutinib (N = 8)
Median follow-up (range) months		12 months (1–43)	6 months (3–23)
Age (median)		61 ± 12.8 years	58.25 ± 7.6 years
FISH del 17p		3 (18%)	2 (25%)
Prior lines of therapy	≤ 2	14 (82%)	4 (50%)
	> 2	3 (18%)	4 (50%)
Response to ibrutinib	PR	6 (35%)	4 (50%)
	PRL	5 (30%)	2 (25%)
	SD	2 (12%)	2 (25%)
	PD	4 (23%)	–
Ibrutinib dose reduction		8 (47%)	5 (62%)
Due to AE		7	3
Due to financial reasons		1	2
Neutropenia grade 3–4		1 (6%)	1 (12%)
Thrombocytopenia grade 3–4		2 (12%)	1 (12%)
Bleeding grade 3–4		1 (6%)	–
Diarrhoea grade 3–4		2 (12%)	1 (12%)
Infection grade 3–5		5 (29%)	6 (75%)
Deaths		7 (41%)	4 (50%)
Median PFS (months)		14	18

Table 3 Comparison of clinical trial and real-world data of ibrutinib discontinuation and dose reduction rates and causes in R/R CLL

Variable	Clinical trial (3)	Real-world Sweden (12)	Real-world USA (11)	Our study
n	195	95	536	25
Median follow-up	44 months	30 months	17 months	11 months
Median age	67 (30–86)	69	60 (22–95)	61 (37–84)
High risk	60%	63%	40%	40%
ORR	91%	84%	NA	68%
Discontinuation rates	39%	49%	43%	44%
Due to AE	12%	20%	21.6%	24%
Due to PD	27%	19%	9%	20%
Dose reductions	13.3	26.3%	20%	52%
Infections	23% (gr3-4)	51% (grade 3–4) 7.4% (grade 5)	10.7%	24% (grade 3–4) 20% (grade 5)
Death	NA	39%	NA	44%
Median PFS	Not reached	35 months	35 months	14 months

Eur J Haematol. 2020;105:755–762.

Quality of life in patients of chronic lymphocytic leukemia using the EORTC QLQ-C30 and QLQ-CLL17 questionnaire

Padma Youron[1] | Charanpreet Singh[1] | Nishant Jindal[1] | Pankaj Malhotra[1] | Alka Khadwal[1] | Arihant Jain[1] | Gaurav Prakash[1] | Neelam Varma[2] | Subhash Varma[1] | Deepesh P. Lad[1]

Methods: The EORTC QLQ-C30 and QLQ-CLL17 questionnaire validated in regional languages were administered to 127 consecutive CLL and 100 age-matched, healthy controls at a single center from 2018 to 2019.

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TABLE 2 Comparison of global health, functional scales, and summary scores of QoL in CLL patients on W&W, CIT, and ibrutinib compared to healthy controls

	Controls (n = 100)	W&W (n = 52)	on CIT (n = 23)	after CIT (n = 47)	on ibrutinib (n = 15)	*P value (clinically significance)*
	Mean ± SD	Mean ± SD	Mean ± SD	Mean ± SD	Mean ± SD	
QL	96.6 ± 6.2	78.8 ± 19.7	71.7 ± 14	74.9 ± 17.5	75.5 ± 28.9	*<.0001 (L)*
PF	96.2 ± 6.9	87.1 ± 3.9	84.7 ± 15.2	85.2 ± 13.6	88.4 ± 15.6	*<.0001 (S)*
RF	99.8 ± 1.6	90.7 ± 20.4	89.6 ± 15.3	89.3 ± 16.8	83.3 ± 24.4	*<.0001 (S)*
EF	100 ± 0	78.5 ± 22.8	79.7 ± 17.1	78.1 ± 21	86.6 ± 23.9	*<.0001 (L)*
CF	99.6 ± 2.3	88.4 ± 17.3	93.6 ± 9.8	91.4 ± 17.7	94.4 ± 10.3	*<.0001 (S, M for W&W)*
SF	100 ± 0	92.9 ± 14.9	82.5 ± 27.1	86.5 ± 26.3	93.3 ± 15.2	*<.0001 (S, L for CIT)*[*P* = .05(M) CIT v ibrutinib]
SS	93.9 ± 4.3	88.7 ± 10.9	87.2 ± 8.3	88.3 ± 12	90.5 ± 12	*.0006 (L)*

Abbreviations: CF, cognitive functioning; EF, emotional functioning; QL, global health status; L, large, M, medium; PF, physical functioning; RF, role functioning; S, small clinical significance; SF, social functioning, SS, Summary score.

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Conclusions: Quality of life is severely affected in CLL patients on W&W. Global health status and worries about future health and functioning were major concerns. Socioeconomic status but not age or gender impacted QoL. Patients on ibrutinib had better QoL than on CIT.

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Assessment of 285 cases of chronic lymphocytic leukemia seen at single large tertiary center in Northern India

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Table I. Clinicohematological parameters.

Baseline characteristics	
Age (range)	59 years (28–90)
Males, *n* (%)	209 (73.33%)
Females, *n* (%)	76 (26.67%)
Hepatomegaly, *n* (%)	88 (40.36%)
Splenomegaly, *n* (%)	111 (50.91%)
Hemoglobin (g/dL)	11.50 (4–16)
Total leukocyte count ($\times 10^9$/L)	50 (82–430)
Absolute lymphocyte count ($\times 10^9$/L)	40.9 (53–369)
Platelet count ($\times 10^9$/L)	150 (10–420)
Rai stage	
0, *n* (%)	27 (9.5%)
I, *n* (%)	46 (16.1%)
II, *n* (%)	95 (33.3%)
III, *n* (%)	57 (20.1%)
IV, *n* (%)	60 (21.1%)

Table II. Comorbidities (in various different combinations) ($n = 96$).

Hypertension	50
Diabetes mellitus	47
Coronary artery disease	21
Chronic obstructive pulmonary disease	18
Hypothyroidism	10
Cirrhosis/chronic hepatitis	4

Table III. First-line chemotherapy and response.

	$n = 141$ (%)	CR (%)	PR (%)	ORR (%)	SD (%)	PD (%)
Chlorambucil-based	96 (67.85%)	3 (3.1%)	63 (65.6%)	66 (68.7%)	13 (13.4%)	17 (17.7%)
Fludarabine-based	27 (19.28%)	12 (44.44%)	12 (44.44%)	24 (88.88%)	2 (7.4%)	1 (3.7%)
CVP/CHOP	14 (10%)	1 (7.01%)	9 (64%)	10 (71%)	1 (7.1%)	3 (21.4%)

Summary & Conclusions

- Great progress in the field of CLL
- Especially in last decade
- Risk stratification (FISH and IGHV mutation)
- Asymptomatic: Wait and watch
- Symptomatic/Rai III/IV: Treatment is based on FISH and IGHV mutations
- Ibrutinib for high-risk
- BR/FCR/Chl-R±Pred for middle-low socio
- Generic Ibrutinib has similar efficacy as innovator

Thank You
PicMix