

QuANTUM-First: Efficacy in Newly Diagnosed Patients With FMS-Like Tyrosine Kinase 3-Internal Tandem Duplication–Positive Acute Myeloid Leukemia Who Received Continuation Therapy

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- ***Participation on a Data Safety Monitoring Board or Advisory Board:***
Bristol Myers Squibb, Kurome Therapeutics, and Schrödinger
- ***Stock options:*** Kurome Therapeutics

Background and Objectives

BACKGROUND

- The addition of quizartinib to intensive induction, consolidation, and continuation therapy improved OS in the QuANTUM-First phase 3 study (NCT02668653)¹
 - The HR for OS was 0.78 (95% CI, 0.62-0.98), with a decrease in the relative risk of death by 22% versus placebo¹
- Based on these data¹:
 - Quizartinib has been approved in the US,² EU,³ UK,⁴ and Japan⁵ in combination with chemotherapy across induction, consolidation, and as continuation monotherapy (but not after transplantation in the US) for the treatment of adult patients with newly diagnosed *FLT3*-ITD–positive AML

OBJECTIVES

- To evaluate the impact of continuation therapy on quizartinib efficacy in patients with newly diagnosed *FLT3*-ITD–positive AML treated in the QuANTUM-First study, by analyzing OS, RFS (prespecified exploratory analyses), and CIR in patients who entered continuation

QuANTUM-First Phase 3 Study: Quizartinib Plus Standard Induction Chemotherapy and Consolidation Followed by Single-Agent Quizartinib¹

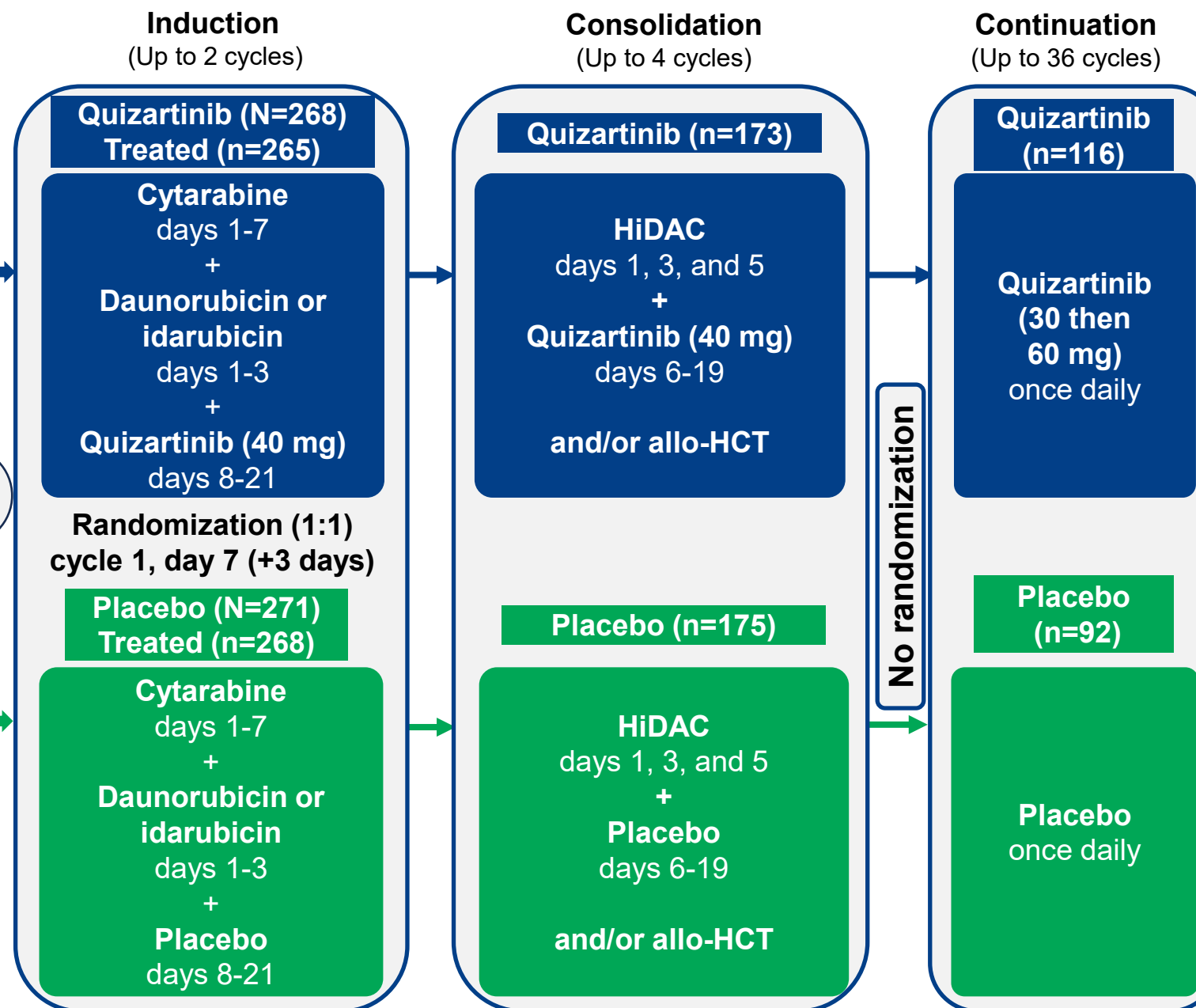
Stratification Factors

- **Region:** NA, EU, and Asia/other regions
- **Patient age:** <60 years, ≥60 years
- **WBC^a:** <40×10⁹/L, ≥40×10⁹/L

- Newly diagnosed *FLT3*-ITD–positive AML
- 18-75 years of age
- ≥3% *FLT3*-ITD allelic frequency
- Patients begin 7+3 chemotherapy during screening

Screened (N=3468)
Randomized 1:1 (N=539)

R



Continuation therapy could be received without transplant, or after transplant

Key Endpoints^a

- **Primary endpoint:** OS
- **Secondary endpoints:** EFS, CR, CR_c, CR/CR_c with MRD negativity by end of induction, safety
- **Exploratory endpoints:** RFS, DOCR, CIR^b, OS in continuation, and RFS in continuation

^aA hierarchical testing procedure was used to test the primary endpoint of OS, followed by EFS, CR, CR_c, CR with *FLT3*-ITD MRD negativity, and CR_c with *FLT3*-ITD MRD negativity. ^bCIR was assessed post hoc. AML, acute myeloid leukemia; allo-HCT, allogeneic hematopoietic cell transplantation; CR, complete remission; CR_c, composite complete remission; DOCR, duration of complete remission; EFS, event-free survival; EU, Europe; *FLT3*-ITD, FMS-like tyrosine kinase 3–internal tandem duplication; HiDAC, high-dose cytarabine; MRD, measurable residual disease; NA, North America; R, randomization; OS, overall survival; RFS, relapse-free survival; WBC, white blood cell. 1. Erba HP, et al. *Lancet*. 2023;401(10388):1571-1583. NCT02668653.

Demographics and Disease Characteristics in Patients Who Received Continuation Therapy by Treatment Arm

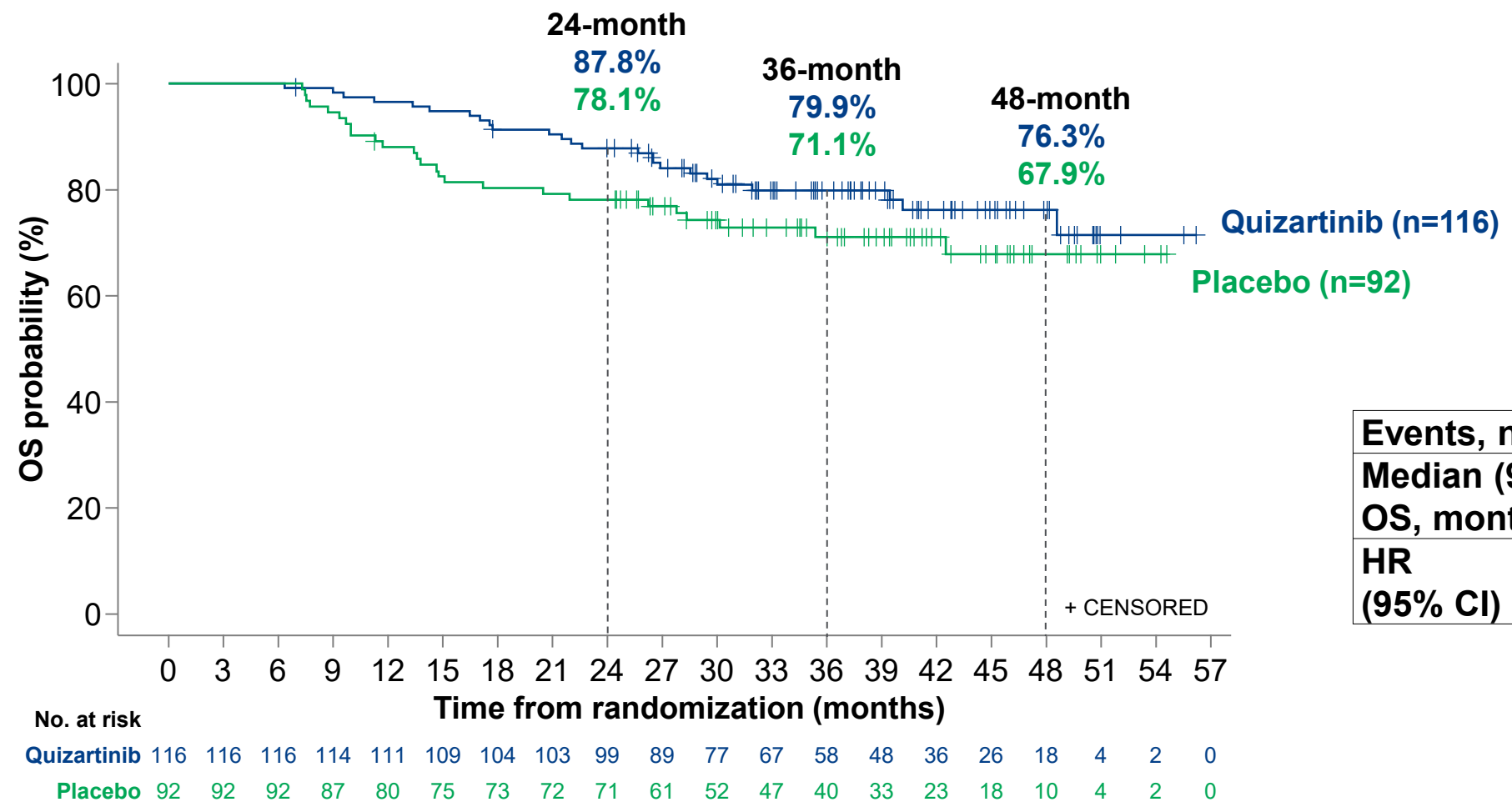
Baseline characteristics	Patients who received continuation therapy		ITT population	
	Quizartinib (n=116)	Placebo (n=92)	Quizartinib (n=268)	Placebo (n=271)
Age				
Median (range), years	53 (23-73)	56.5 (20-74)	56 (23-75)	56 (20-75)
<60 years, %	66.4	54.3	60.1	59.8
≥60 years, %	33.6	45.7	39.9	40.2
Sex, %				
Male	45.7	41.3	46.3	44.6
Female	54.3	58.7	53.7	55.4
ECOG PS, %				
0	36.2	38.0	32.5	36.2
1	49.1	54.3	50.0	50.2
2	14.7	7.6	17.5	13.3
Missing	0	0	0	0.4
Cytogenetic risk status, %				
Favorable	4.3	10.9	5.2	7.0
Intermediate	72.4	65.2	73.5	71.2
Unfavorable	6.9	9.8	7.1	10.0
Unknown/Missing	16.4	14.1	14.2	11.8
Mutated <i>NPM1</i>,^b %	59.5	65.2	53.0	51.7
Mutated <i>CEBPA</i>,^b %	25.0	27.2	22.8	24.0
<i>FLT3</i>-ITD/total <i>FLT3</i> (VAF), %				
≥3 to ≤25%	37.9	45.7	35.1	36.2
>25% to ≤50%	50.9	45.7	53.4	50.9
>50%	10.3	8.7	11.2	12.9
>25%	61.2	54.3	64.6	63.8
Unknown	0.9	0	0.4	0
WBC count at AML diagnosis, %				
<40×10 ⁹ /L	49.1	63.0	50.4	50.6
≥40×10 ⁹ /L	50.9	37.0	49.6	49.4
<i>FLT3</i>-ITD MRD negativity (<10⁻⁴ leukemia cells) in induction, n/n (%)	NA	NA	78/162 (48.1)	61/159 (38.4)

AML, acute myeloid leukemia; C, cycle; *CEBPA*, CCAAT enhancer-binding protein alpha; D, day; ECOG PS, ECOG PS, Eastern Cooperative Oncology Group performance status; *FLT3*-ITD, FMS-like tyrosine kinase 3–internal tandem duplication; ITT, intent-to-treat; MRD, measurable residual disease; NA, not applicable; *NPM1*, nucleophosmin 1; VAF, variant allele frequency; WBC, white blood cell.

OS in Patients Who Received Continuation Therapy

Quizartinib Provided a Numerical OS Benefit Over Placebo in Patients Who Received Continuation Therapy

Overall Survival



	Quizartinib (n=116)	Placebo (n=92)
Events, n (%)	25 (21.6)	26 (28.3)
Median (95% CI) OS, months	NR (NE-NE)	NR (NE-NE)
HR (95% CI)	0.683 (0.395-1.183)	

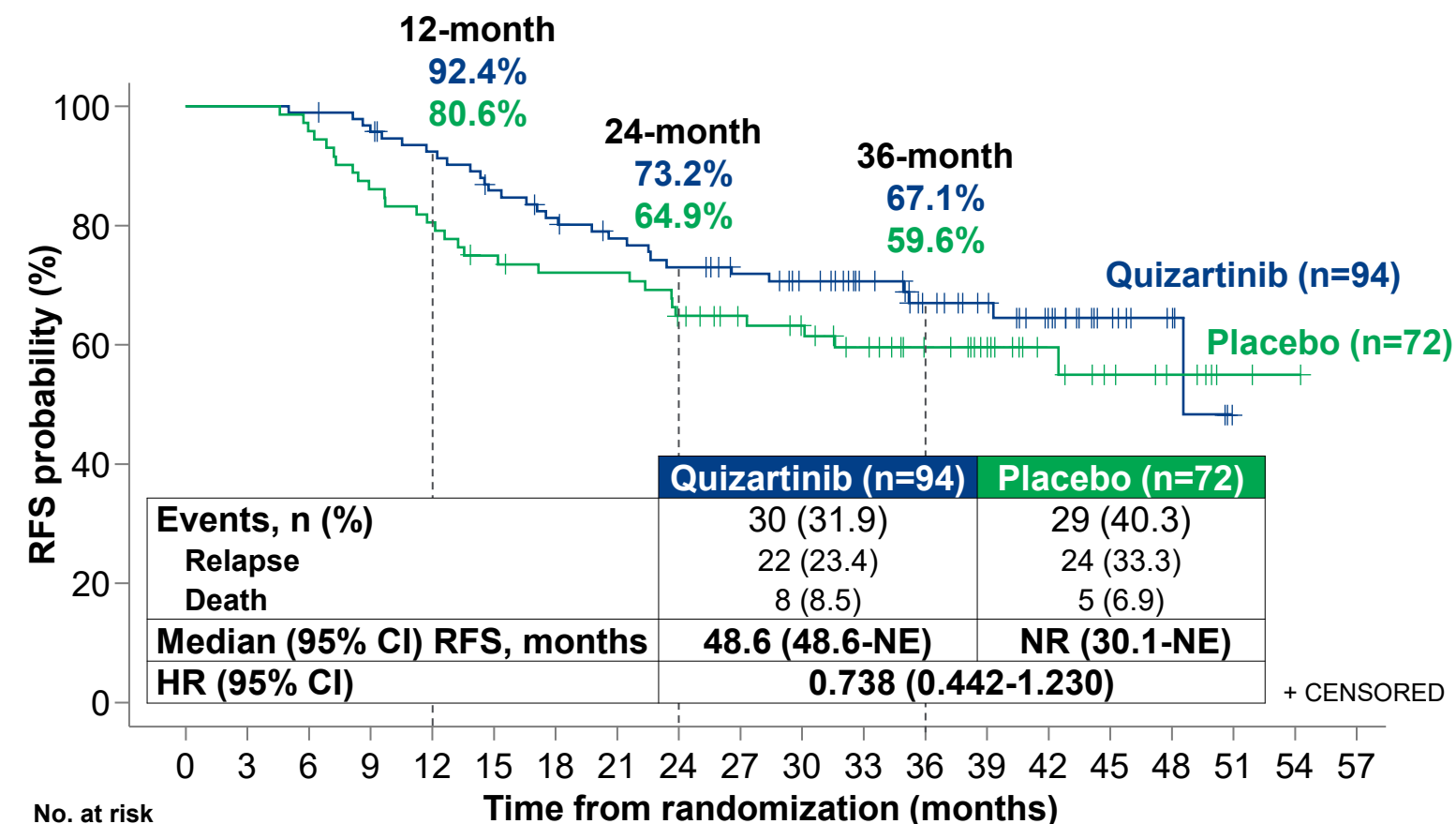
CI, confidence interval; HR, hazard ratio; NE, not estimable; NR, not reached; OS, overall survival.

RFS and CIR in Patients Who Achieved CR in Induction by IRC and Received Continuation Therapy

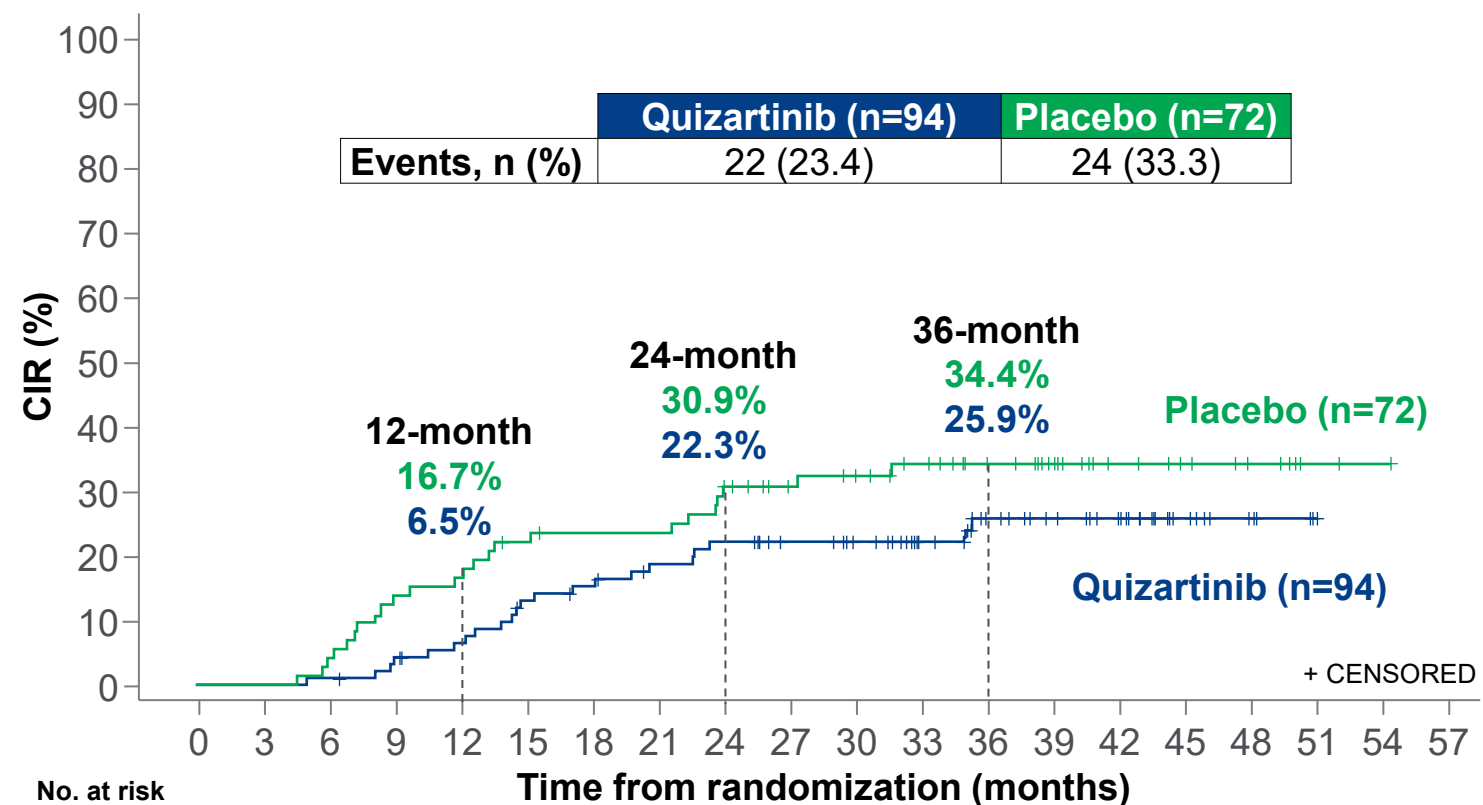
Numerically Higher RFS Rates Were Observed in the Quizartinib Arm Versus the Placebo Arm

CIR Decreased at 12, 24, and 36 Months in the Quizartinib Arm Versus the Placebo Arm

Relapse-Free Survival



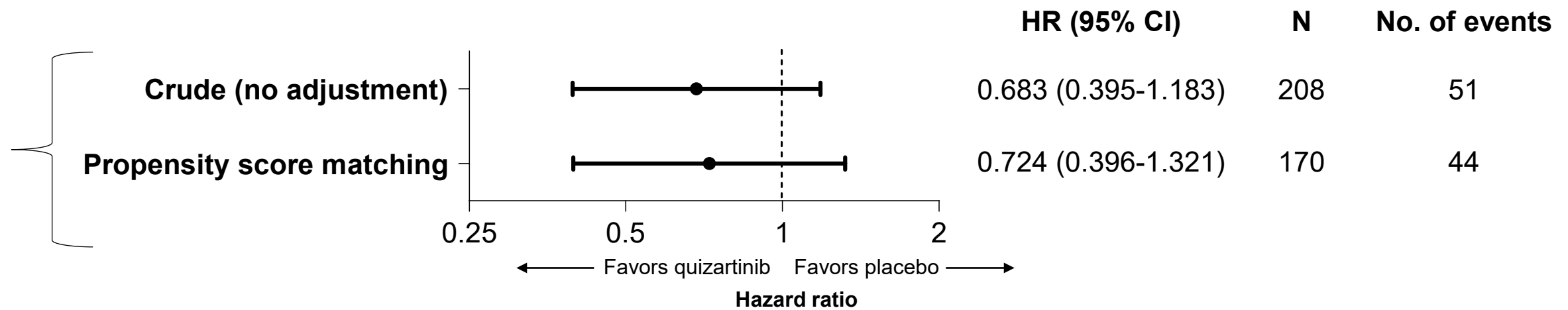
Cumulative Incidence of Relapse



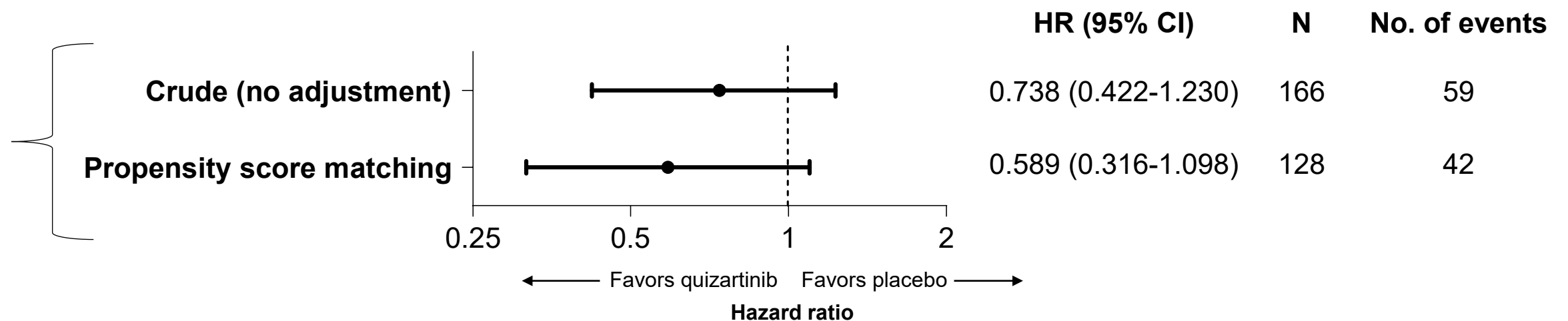
Propensity Score-Based Analyses of OS and RFS in Patients Who Received Continuation Therapy

- Propensity score-based analysis of OS and RFS favored quizartinib over placebo
- These analyses were conducted considering baseline covariates (age, sex, WBC count at AML diagnosis, *NPM1* mutational status, percent of bone marrow blasts), and also allo-HCT before continuation and type of anthracycline

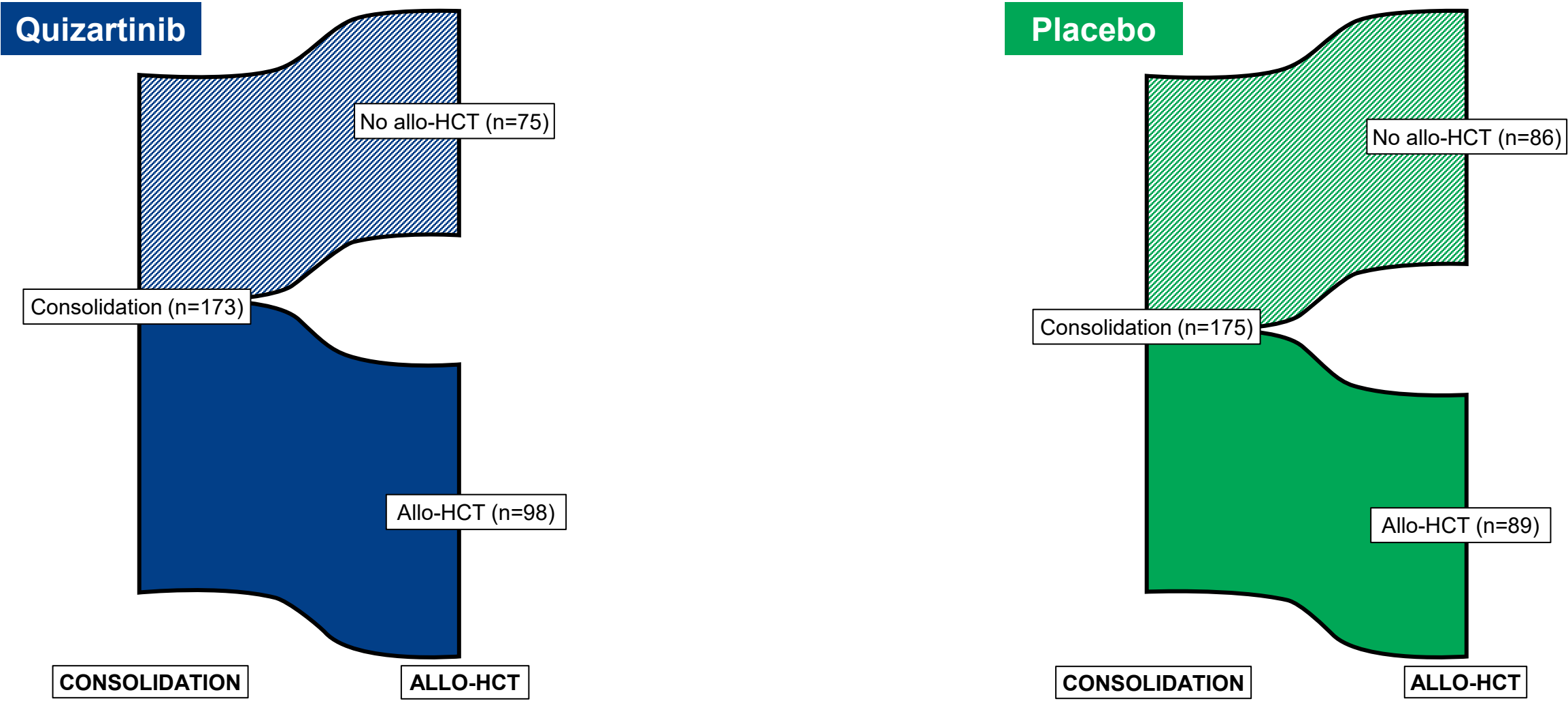
Propensity score-based analyses of OS



Propensity score-based analyses of RFS in patients who achieved CR in induction by IRC

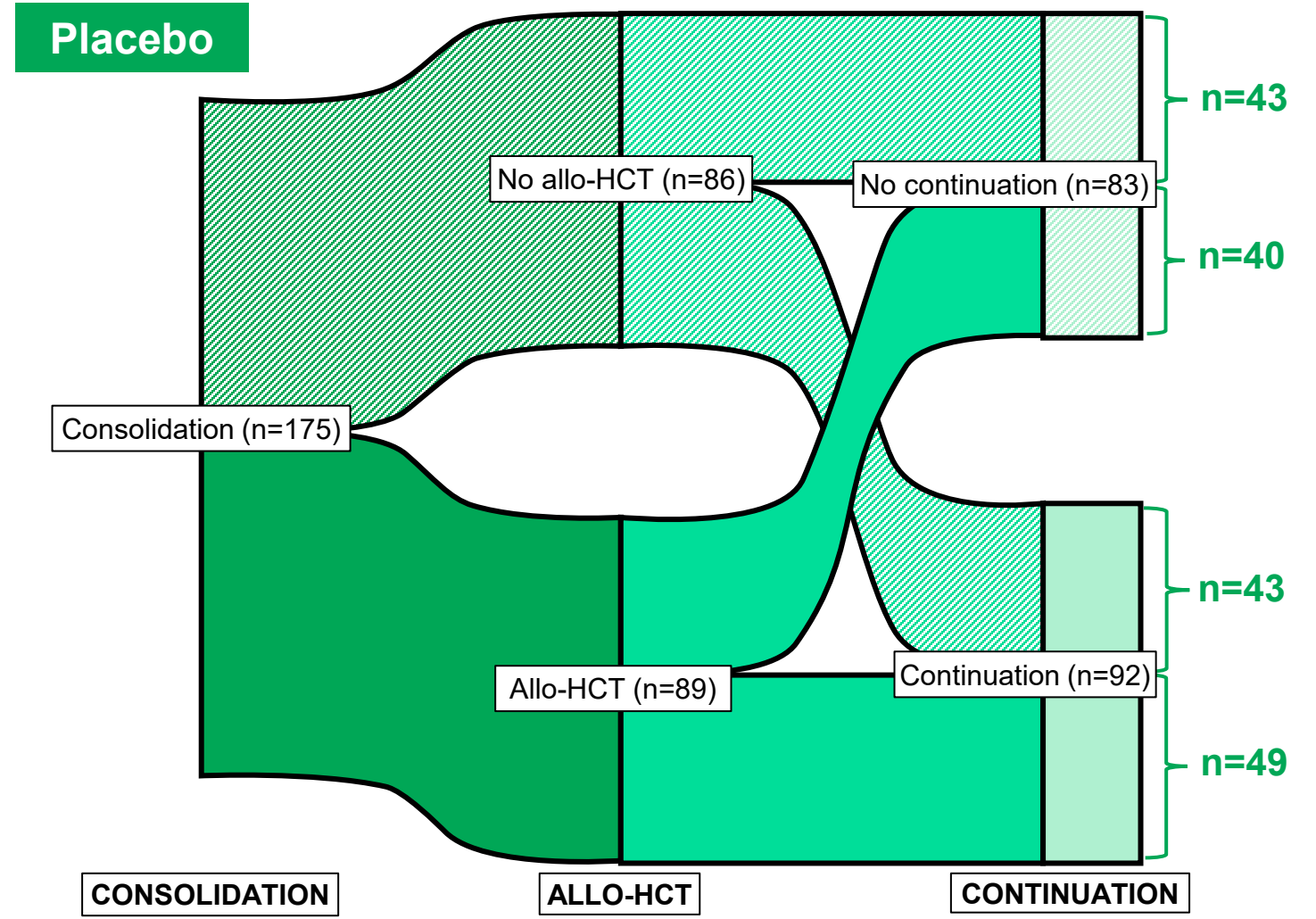
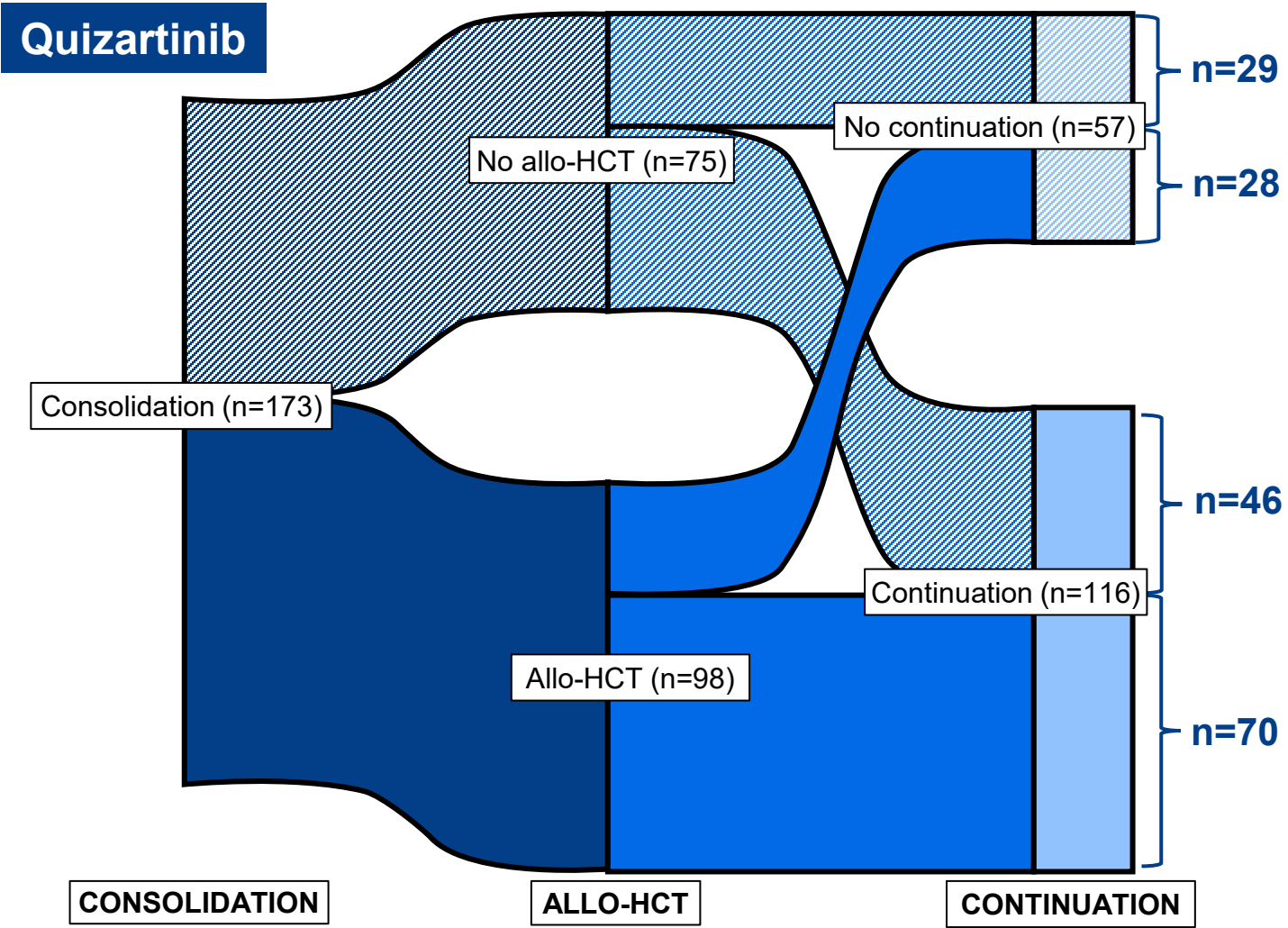


Patients Who Received Continuation Therapy by Allo-HCT and by Treatment Arm



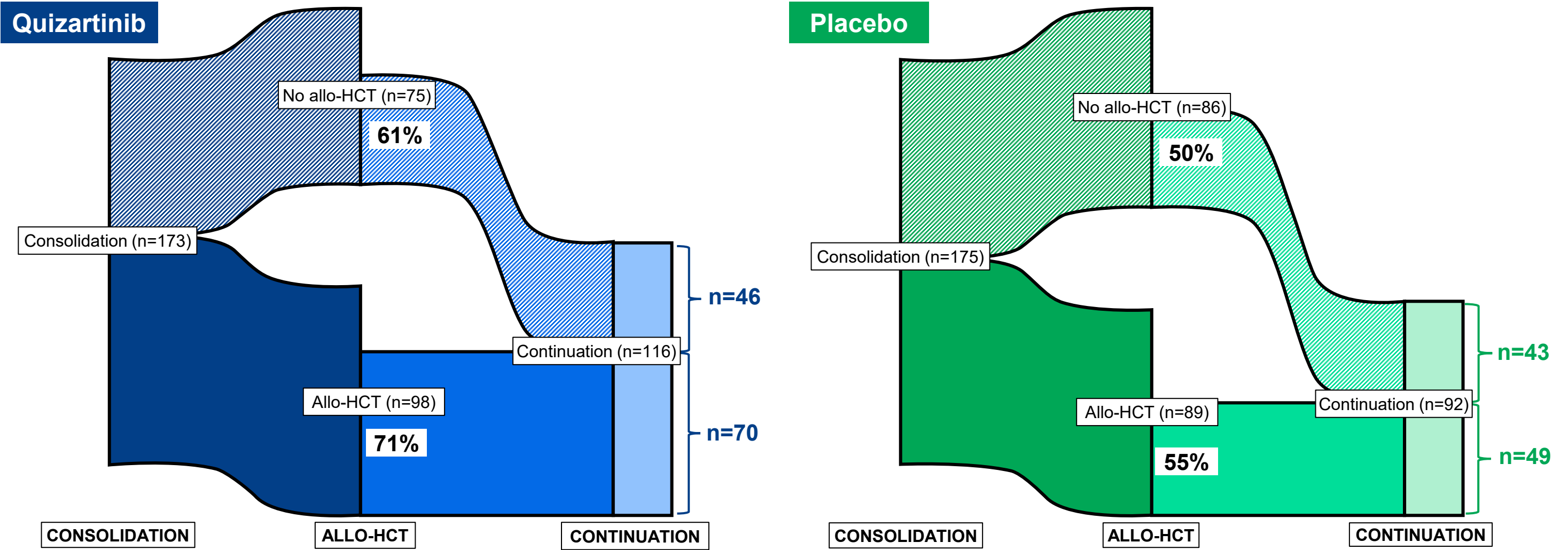
The thickness of each flow path is proportional to the number of patients. Allo-HCT, allogeneic hematopoietic cell transplantation.

Patients Who Received Continuation Therapy by Allo-HCT and by Treatment Arm



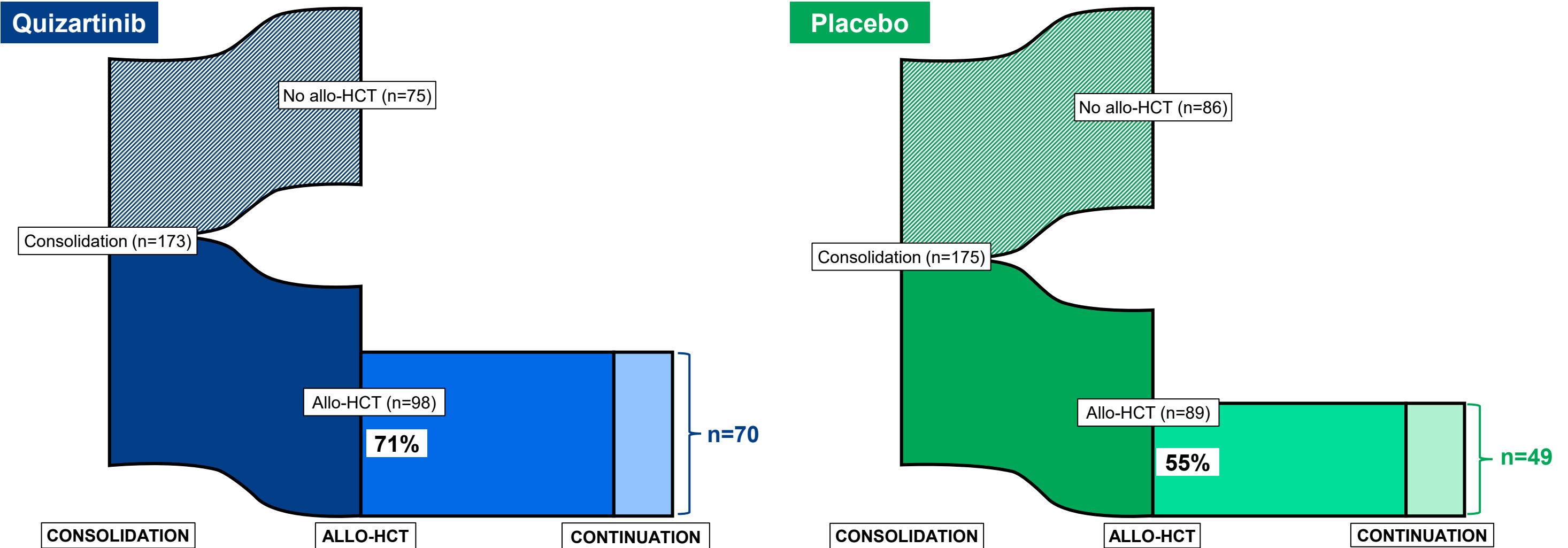
The thickness of each flow path is proportional to the number of patients. Allo-HCT, allogeneic hematopoietic cell transplantation.

Patients Who Received Continuation Therapy by Allo-HCT and by Treatment Arm



- Of the patients who had allo-HCT in consolidation, 71% (70/98) of those in the quizartinib arm versus 55% (49/89) in the placebo arm proceeded to continuation
- More transplanted patients in the placebo arm could not proceed to continuation because of relapse or failure to meet continuation criteria

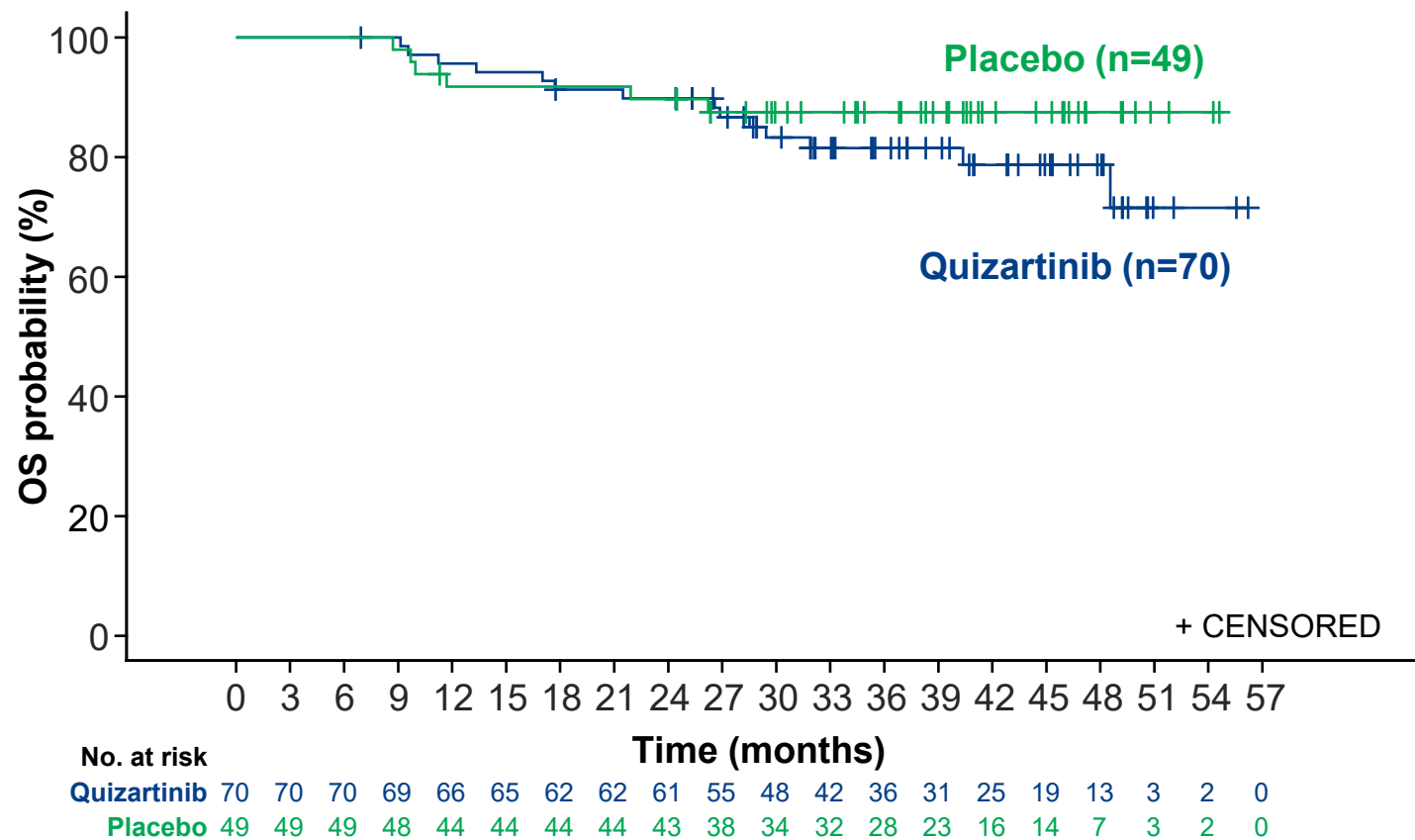
Patients Who Received Continuation Therapy by Allo-HCT and by Treatment Arm



- Of the patients who had allo-HCT in consolidation, 71% (70/98) of those in the quizartinib arm versus 55% (49/89) in the placebo arm proceeded to continuation
- More transplanted patients in the placebo arm could not proceed to continuation because of relapse or failure to meet continuation criteria

OS in Patients Who Had Prior Allo-HCT and Received Continuation Therapy

OS in Patients Who Received Continuation Therapy With Allo-HCT^a

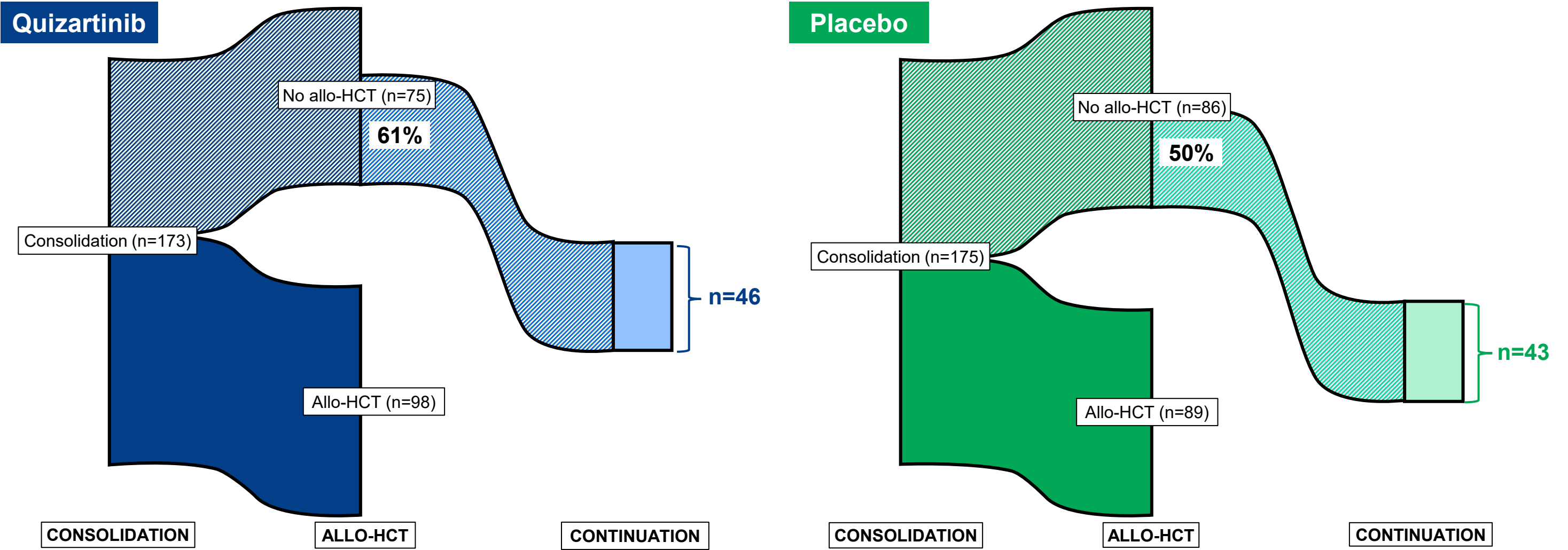


- More patients on quizartinib who received allo-HCT in consolidation were able to reach continuation, explaining the imbalance in the number of patients in the quizartinib arm versus the placebo arm (70 vs 49)
- The total number of OS events was 20
- The median follow-up was 39.2 months

	Quizartinib (n=70)	Placebo (n=49)
Median OS, months	NR	NR
HR (95% CI)	1.622 (0.623-4.220)	

^aIncludes protocol-specified allo-HCT. Allo-HCT, allogeneic hematopoietic cell transplantation; CI, confidence interval; HR, hazard ratio; NR, not reached; OS, overall survival.

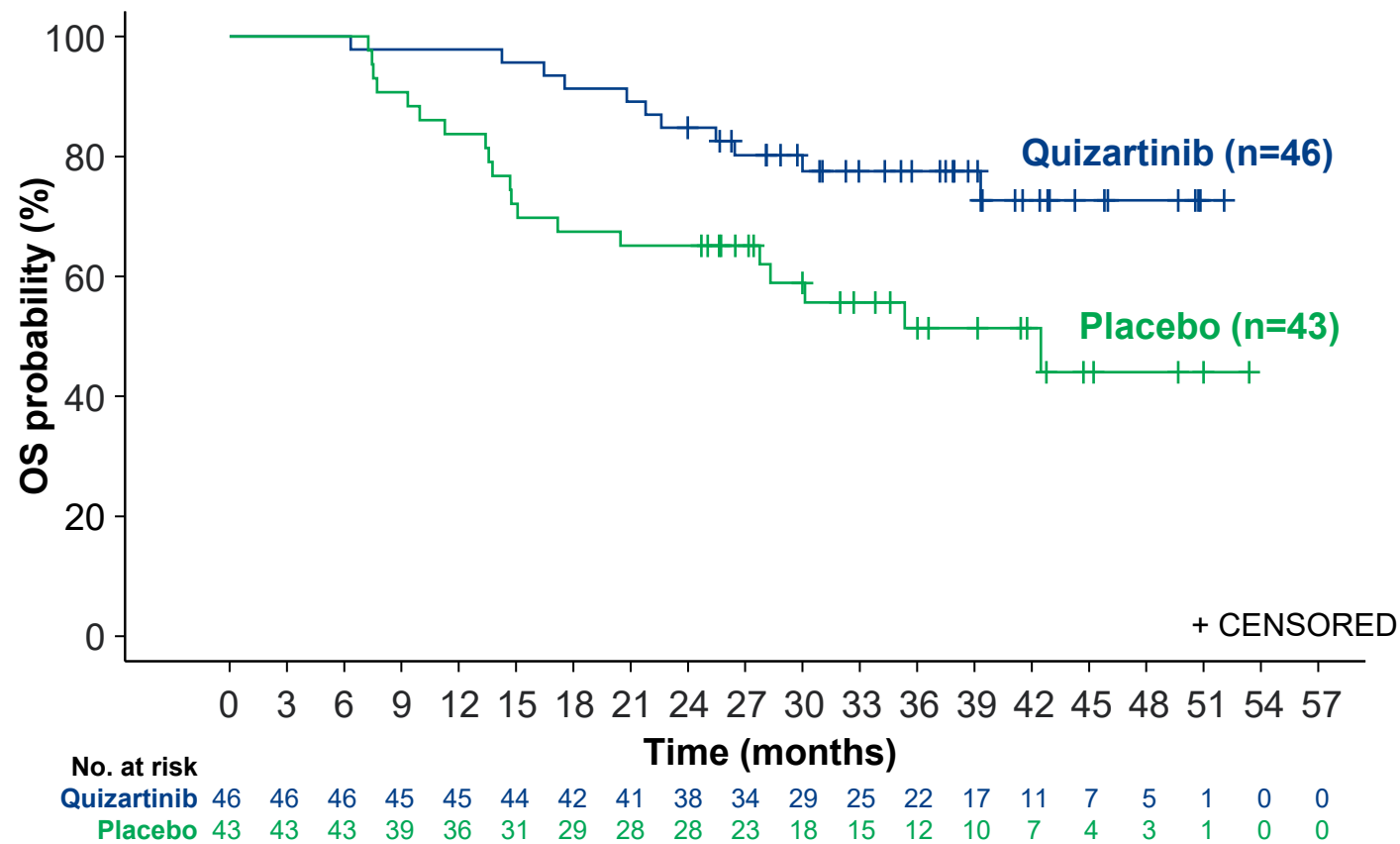
Patients Who Received Continuation Therapy by Allo-HCT and by Treatment Arm



- Of the patients who did not undergo allo-HCT before consolidation, a similar proportion of patients proceeded to continuation in either arms

OS in Patients Who Received Continuation Therapy Without Allo-HCT

OS in Patients Who Received Continuation Therapy Without Allo-HCT



- Similar number of patients without allo-HCT in both groups were able to reach continuation
- An **OS** benefit was observed with quizartinib over placebo with a 60% reduction in the risk of death

	Quizartinib (n=46)	Placebo (n=43)
Median OS, months	NR	42.5
HR (95% CI)	0.401 (0.192-0.838)	

Exposure and Summary of Overall Safety During Continuation Therapy

EXPOSURE

- Median (range) number of cycles:
 - 16 (1-36) in the quizartinib arm
 - 17 (1-36) in the placebo arm
- Median (range) adjusted treatment durations:
 - 67.36 weeks (0.4-164.1) in the quizartinib arm
 - 67.71 weeks (0.3-150.4) in the placebo arm
- A total of 64.4% of patients who received continuation therapy had ≥ 12 cycles:
 - 75/116 (64.7%) patients in the quizartinib arm
 - 59/92 (64.1%) patients in the placebo arm

- During continuation, rates of grade ≥ 3 TEAEs, TRAEs, and AEs leading to dose interruptions/reductions were more common with quizartinib compared with placebo

	Quizartinib (n=116)	Placebo (n=92)
AEs, n (%)		
Any TEAEs	109 (94.0)	84 (91.3)
Any TRAEs	85 (73.3)	34 (37.0)
Grade ≥ 3 TEAEs (including grade 5)	91 (78.4)	53 (57.6)
Grade ≥ 3 TRAEs (including grade 5)	62 (53.4)	16 (17.4)
Serious TEAEs	39 (33.6)	34 (37.0)
TRSAEs	8 (6.9)	5 (5.4)
AEs associated with fatal outcome	3 (2.6)	7 (7.6)
TRAEs associated with fatal outcome	0	0
Dose modifications, n (%)		
TEAEs associated with discontinuation	18 (15.5)	7 (7.6)
TRAEs associated with discontinuation	12 (10.3)	3 (3.3)
TEAEs associated with dose interruption	65 (56.0)	22 (23.9)
TRAEs associated with dose interruption	46 (39.7)	11 (12.0)
TEAEs associated with dose reduction	42 (36.2)	14 (15.2)
TRAEs associated with dose reduction	32 (27.6)	8 (8.7)

TEAEs Occurring in ≥15% of Patients During Continuation Therapy

- The most common (≥15%) TEAEs of all grades during continuation were:
 - Neutropenia (36%), nausea (23%), and diarrhea (21%) in the quizartinib arm
 - Pyrexia (17%) and arthralgia (17%) in the placebo arm

TEAEs, %	Quizartinib (n=116)		Placebo (n=92)	
	All grade ^a	Grade ≥3	All grade ^a	Grade ≥3
Any TEAEs	109 (94.0)	91 (78.4)	84 (91.3)	53 (57.6)
Neutropenia	42 (36.2)	36 (31.0)	6 (6.5)	4 (4.3)
Nausea	27 (23.3)	2 (1.7)	8 (8.7)	1 (1.1)
Diarrhea	24 (20.7)	3 (2.6)	10 (10.9)	1 (1.1)
Thrombocytopenia	20 (17.2)	10 (8.6)	8 (8.7)	4 (4.3)
Upper respiratory tract infection	20 (17.2)	1 (0.9)	9 (9.8)	0
Anemia	19 (16.4)	6 (5.2)	4 (4.3)	2 (2.2)
Cough	19 (16.4)	1 (0.9)	11 (12.0)	0
Neutrophil count decreased	17 (14.7)	14 (12.1)	4 (4.3)	0
Vomiting	17 (14.7)	0	7 (7.6)	0
Pyrexia	16 (13.8)	0	16 (17.4)	2 (2.2)
Arthralgia	13 (11.2)	0	16 (17.4)	0

^aThe 15% threshold is based on all-grade TEAEs. TEAE, treatment-emergent adverse event.

Conclusions

- Quizartinib is part of a treatment regimen that includes induction, consolidation, and continuation; for the entire study population, in patients who received continuation, a numerical longer OS, higher RFS rates, and lower CIR rates were observed among those treated with quizartinib
- More patients in the quizartinib arm could proceed to continuation compared with placebo, especially in those who underwent transplantation
 - Among the transplanted patients, the K-M OS curves for quizartinib and placebo overlapped; a wide confidence interval and a limited number of OS events precluded a meaningful assessment of efficacy
 - Among the patients who received continuation but did not undergo transplantation, quizartinib provided an OS benefit over placebo
- This exploratory analysis in patients who received continuation together with the positive benefit-risk profile in the ITT population support the use of quizartinib in patients with newly diagnosed *FLT3*-ITD–positive AML, across the whole treatment regimen
- Future analysis of measurable residual disease may help identifying which patients would benefit the most from continuation therapy

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