From Chronic to Blast: How Diagnostic Delay Shapes Outcomes in MLN-FGFR1

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INTRODUCTION

MLN-FGFR1 (formerly the 8p11 myeloproliferative syndrome) is a rare, aggressive stem cell malignancy driven by FGFR1 fusion kinases.

Presentations range from chronic MPN with eosinophilia to T- or B-lymphoblastic lymphoma and acute leukemia, depending on the fusion partner.

This heterogeneity often leads to delayed recognition, allowing progression from chronic phase to refractory blast phase before targeted therapy begins.

Pemigatinib, FDA-approved in 2022 for relapsed/refractory MLN-FGFR1, is the first targeted therapy - yet the clinical impact of diagnostic delay across phases has not been directly addressed.

AIM

To synthesize published evidence on MLN-FGFR1 outcomes and evaluate whether diagnostic delay, by allowing progression to blast phase, contributes to worse treatment outcomes.

Specific objectives:

1. Characterize phase at diagnosis across published series
2. Compare pemigatinib responses and outcomes by disease phase
3. Identify barriers to early recognition and testing

METHOD

Narrative review of published literature from 1995 through April 2026.

Databases searched:
MEDLINE, EMBASE, ASH and EHA proceedings

Inclusion: Studies reporting outcomes in patients with cytogenetically or molecularly confirmed MLN-FGFR1.

Evidence hierarchy:
1. Prospective trial data
2. Registry cohorts
3. Retrospective series
4. Case reports

CONCLUSIONS

MLN-FGFR1 is rare but molecularly targetable.

Pemigatinib achieves deep, durable responses, particularly in chronic phase (96% CR vs 44% in blast phase).

Nearly half of chronic-phase patients transform within a year, yet early presentations are often difficult to classify.

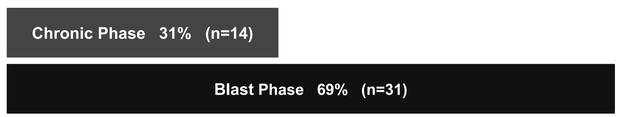
A lower threshold for FGFR1 FISH testing in phenotypically ambiguous presentations could meaningfully shift the phase at which patients are caught and treated.

Prospective registries tracking diagnostic trajectories and transplant outcomes in the pemigatinib era are urgently needed.

RESULTS

Phase at Diagnosis - Umino et al., 2018 (n=45)

Most patients already in blast phase at time of diagnosis.



1-year OS: 43.1% | Blast transformation at 12 months: 46.2%

Source: Umino K et al. Leuk Res. 2018;65:6-11

Real-World Diagnostic Challenge

Parasuraman et al., ASH 2022 (n=33, US cohort):

-Multimodal testing required in most patients: karyotyping, FISH, NGS, and RT-PCR.

-Karyotyping detected FGFR1 translocations in 72.7%; remainder required FISH.

-Eosinophilia absent in a significant minority - its absence should not exclude workup.

-Common misdiagnoses before MLN-FGFR1 confirmed:
- -BCR::ABL1-negative CML
- -T-cell lymphoma
- -Hypereosinophilic syndrome

FIGHT-203 Trial - NEJM Evidence, 2025

Phase 2 | Open-label | n=47 treated, 45 efficacy-evaluable | Median follow-up: 62.9 months

Response Outcome	Chronic Phase (n=24)	Blast Phase (n=18)
Complete Response (CR)	96% (n=23)	44% (n=8)
Complete Cytogenetic Response	88% (n=21)	50% (n=9)
Response at 24 months	85.8%	N/A
Median time to CR	1.5 months	1.5 months

Survival & Transplant (FIGHT-203)

Median PFS:	73.9 months
24-month OS:	72%
Median OS:	Not reached
Bridged to allo-HCT:	28.9% (13/45)

Response & Outcome Comparison

Outcome	Pre-Pemigatinib*	FIGHT-203 (2025)
CR - chronic phase	Rare / undefined	96%
CR - blast phase	Rare / undefined	44%
Complete Cytogenetic Resp.	Rarely achieved	88% (chr) / 50% (bl)
12-mo blast transformation	46.2%	Not directly assessed
Bridge to allo-HCT	Limited	28.9%

KEY CLINICAL TAKEAWAY

Do not wait for eosinophilia.

Its absence does not exclude MLN-FGFR1. Order FGFR1 FISH when the clinical picture fits.

When to Suspect MLN-FGFR1

Order FGFR1 FISH testing when:

-BCR::ABL1-negative CML-like presentation
-T-LBL with concurrent marrow myeloproliferation
-Unexplained eosinophilia with splenomegaly / elevated LDH
-AML or MPAL with karyotypic abnormality at chromosome 8p
-MDS/MPN overlap with lymphadenopathy

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REFERENCES

1. Verstovsek S et al. NEJM Evidence. 2025;4(9):EVIDoa2500017
2. Umino K et al. Leuk Res. 2018;65:6-11
3. Parasuraman S et al. Blood. 2022;140(Suppl 1):6854
4. Shomali W, Gotlib J. Am J Hematol. 2024. doi:10.1002/ajh.27287
5. Khoury JD et al. Leukemia. 2022;36(7):1703
6. Freyer CW et al. Expert Rev Anticancer Ther. 2023;23(4):351