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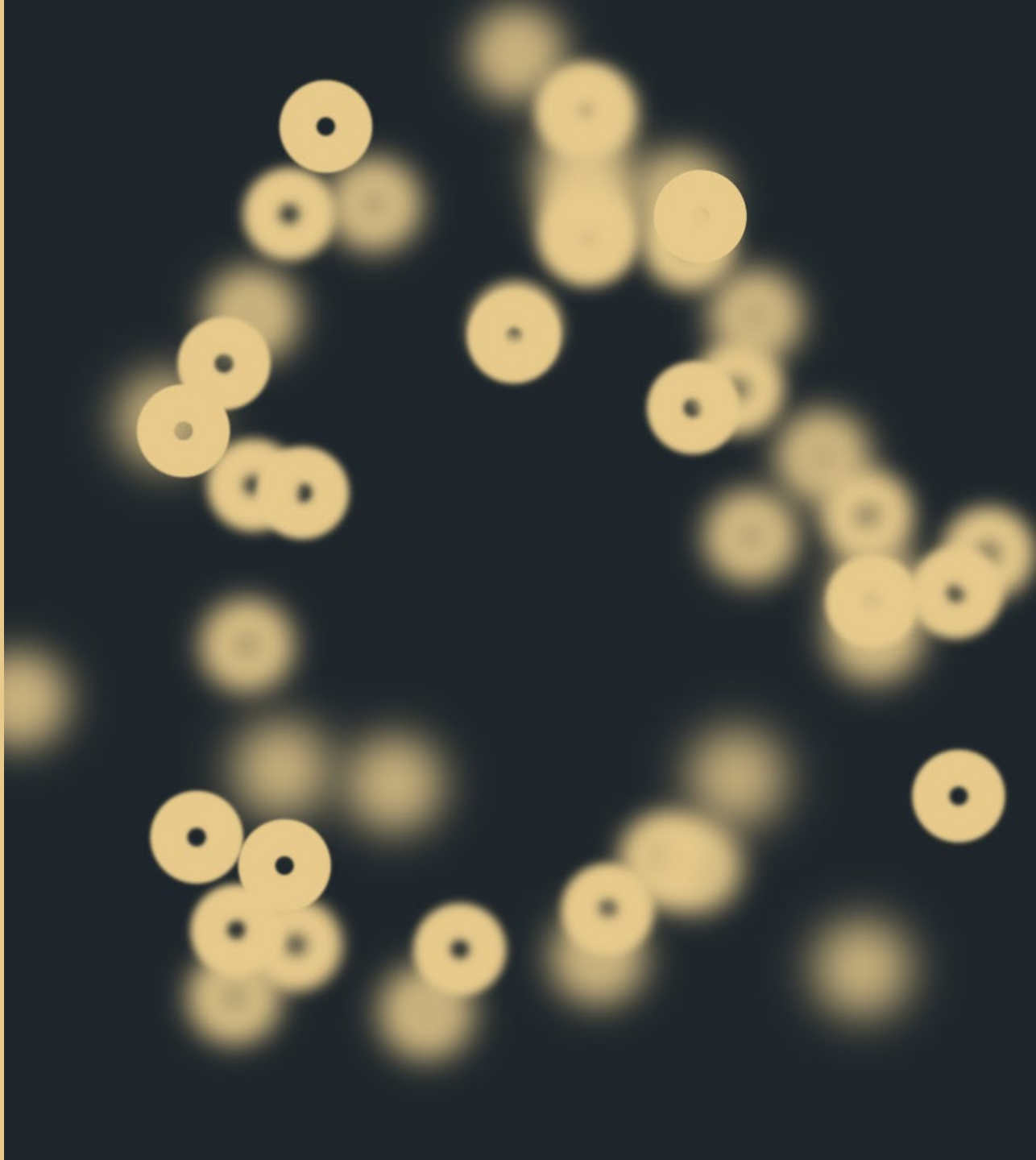
EHA-SWG Scientific Meeting on Recent Advances in the Pathogenesis and Treatment of Secondary Acute Myeloid Leukemias

Berlin, Germany
April 25-26, 2025

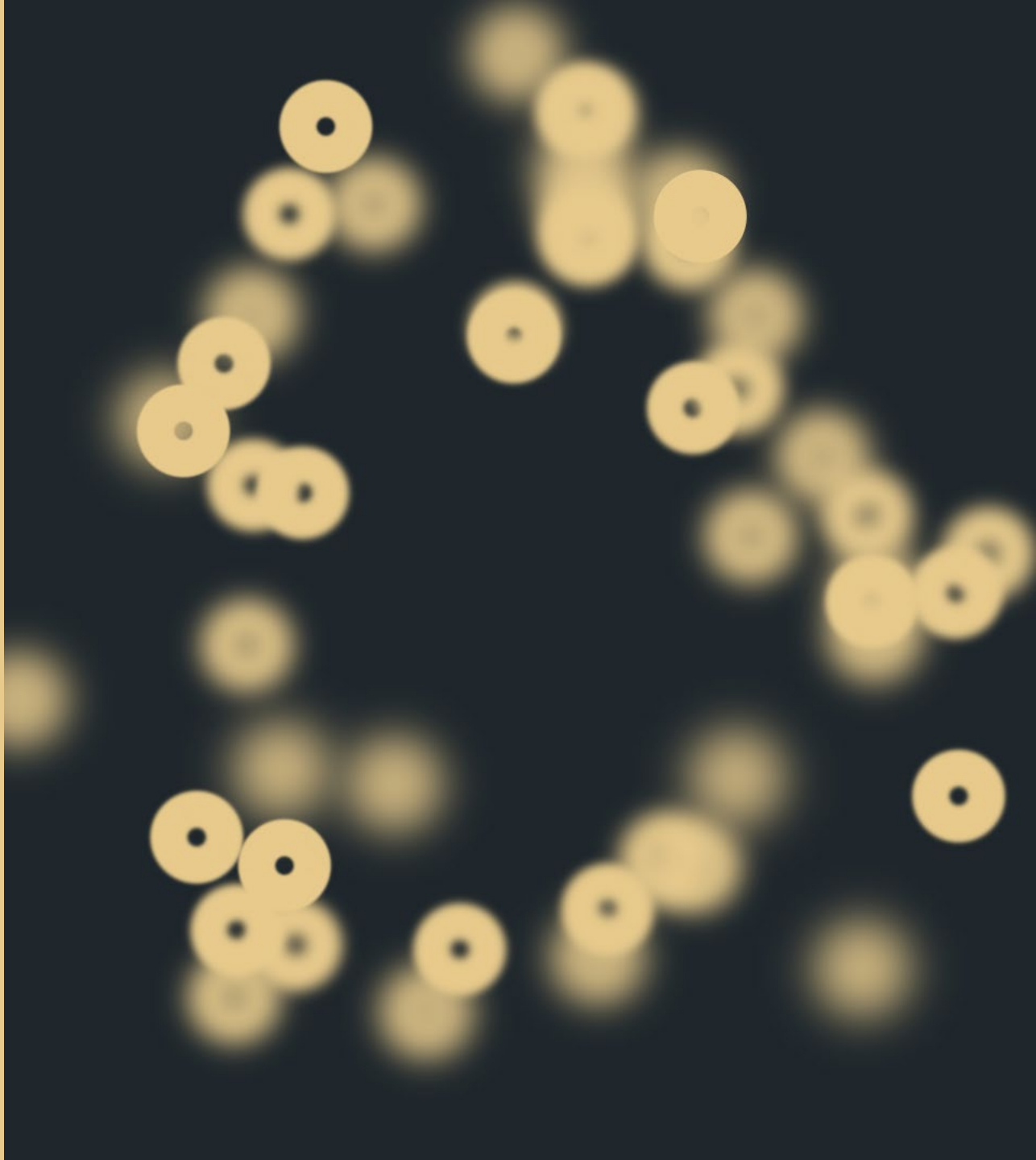


Retrospective evaluation of therapy-related acute myeloid leukemias: a single center experience

Ege University Hospital/Department of Hematology, Izmir, TÜRKİYE

Dr. Denis Cetin

26.04.2025



Contents

Therapy-related acute myeloid leukemia

- 10-15% of newly diagnosed AMLs
- Not a diagnosis with ICC 2022 but a ‘’diagnostic qualifier’’
- Cytotoxic therapy / Radiotherapy with selection of clones resistant to chemoradiotherapy > Mutation accumulation (p53, KMT2A etc.)
- 90% abnormal karyotype

Döhner H, Wei AH, Appelbaum FR, et al. Diagnosis and management of AML in adults: 2022 recommendations from an international expert panel on behalf of the ELN. Blood. 2022;140(12):1345-1377.

Therapy-related acute myeloid leukemia

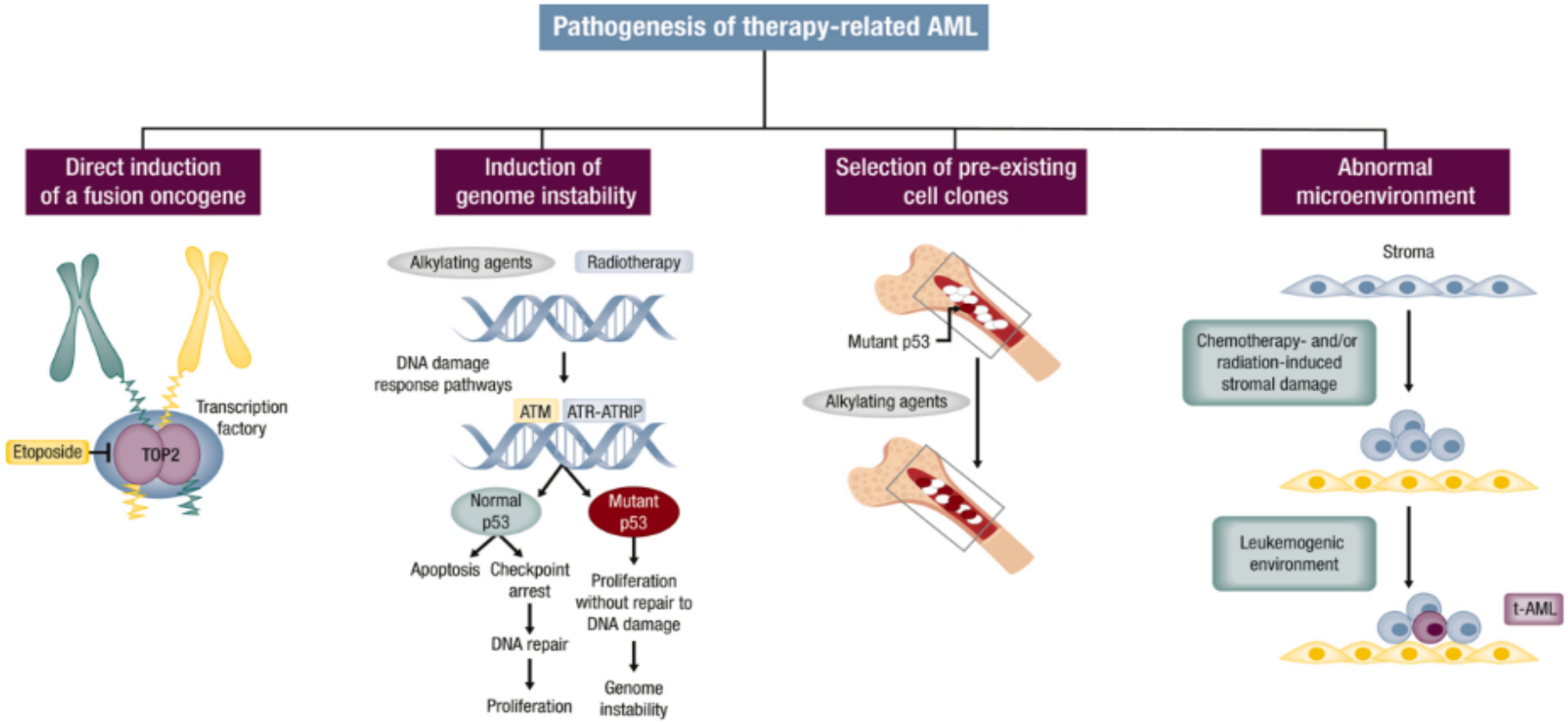
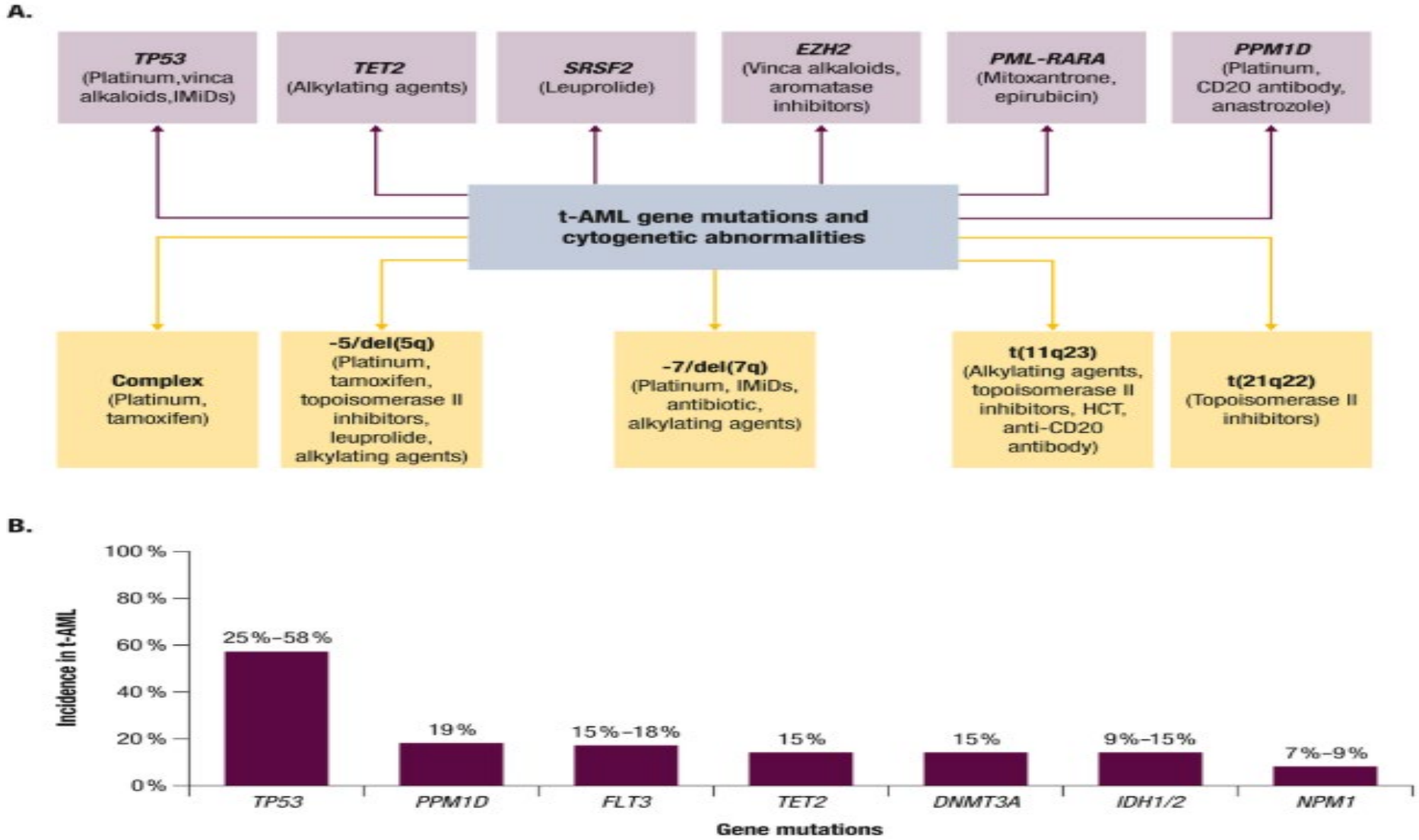


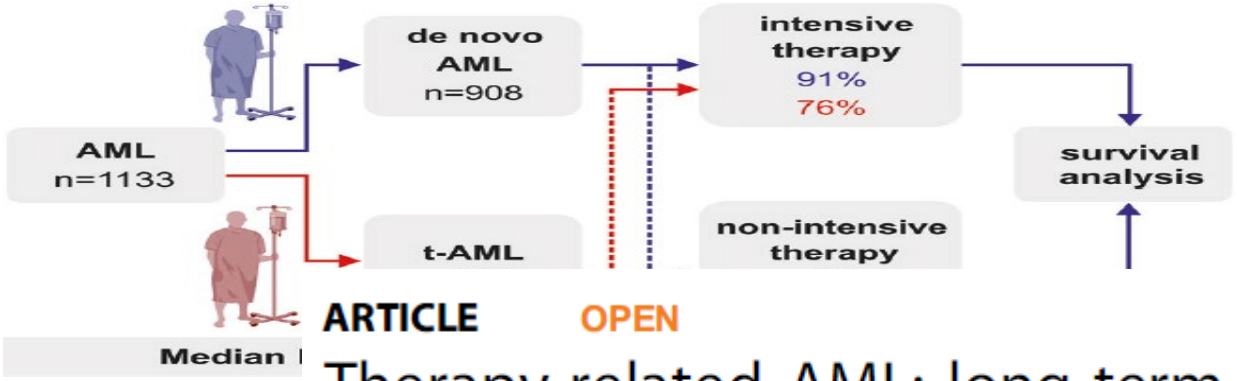
Fig. 1. Pathogenesis of t-AML. Adapted with permission of the American Society of Hematology (ASH) from Therapy-related myeloid neoplasms: does knowing the origin help to guide treatment? by Heuser M. *Hematology Am Soc Hematol Educ Program.* 2016;2016(1):24-32. ©2016; permission conveyed through Copyright Clearance Center, Inc.
Abbreviations: t-AML, therapy-related acute myeloid leukemia.

Therapy-related acute myeloid leukemia



 Retrospective evaluation of therapy-related acute myeloid leukemias: a single center experience

Therapy-related acute myeloid leukemia



Active canc
Used more t
ECOG >1 (HF
Receiving nc
BMI <18.5 (H
Diabetes mellitus (HR 2.0)
Solid-hematological malignancy-autoimmune disease did not affect OS
Radioiodine (HR 0.4)

ARTICLE OPEN

Check for updates

Therapy-related AML: long-term outcome in a large cohort of AML-patients with intensive and non-intensive therapy

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Blood Cancer Journal (2024) 14:160 ; https://doi.org/10.1038/s41408-024-01140-5

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Aim of the study

- To see how long it takes for AML to develop after primary malignancy treatment
- To reveal karyotype and cytogenetic features
- To see the treatment regimens given and the course of patients

Source:

Findings

		Median (min-max)
Age at Primary Disease Diagnosis		70 (17-86)
Age at AML Diagnosis		63 (20-89)
		% (n)
Sex	Female	52,2 (35)
	Male	47,8 (32)
Age	<60	26,9 (18)
	≥60	**73,1** (49)
Primer Malignite	Colorectal	11,9 (8)
	Breast	17,9 (12)
	Lung	6,0 (4)
	Hematologic (non-MDS)	20,9 (14)
	Genitourinary	22,4 (15)
	Other	20,9 (14)

Karyotype and Cytogenetic Abnormalities

- There were 41 patients who underwent karyotype testing, and 26 patients did not undergo karyotype testing.
- 8 patients with complex karyotype, only 2 patients achieved remission, allo-HST could not be performed. Longest survival 12 months, median survival 4 months

Cytogenetics	t(15;17) translocation	Yes	1,5 (1)
		No	66 (98,5)
	t(8;21) translocation	Yes	6 (9,0)
		No	61 (91,0)
	11q23MLL/KMT2A mutation	Yes	4 (6,0)
		No	94,0 (63)
	İnv(16)	Yes	2 (3)
		No	65 (97)

- No statistically significant effect on mortality risk according to Cox regression ($p > 0.05$).

- -inv16 alteration group HR = 0.313
- -11q23 MLL/KMT2A mutant group HR:1.730

} Statistically not significant

Reticular fiber grade, Response after Remission Induction

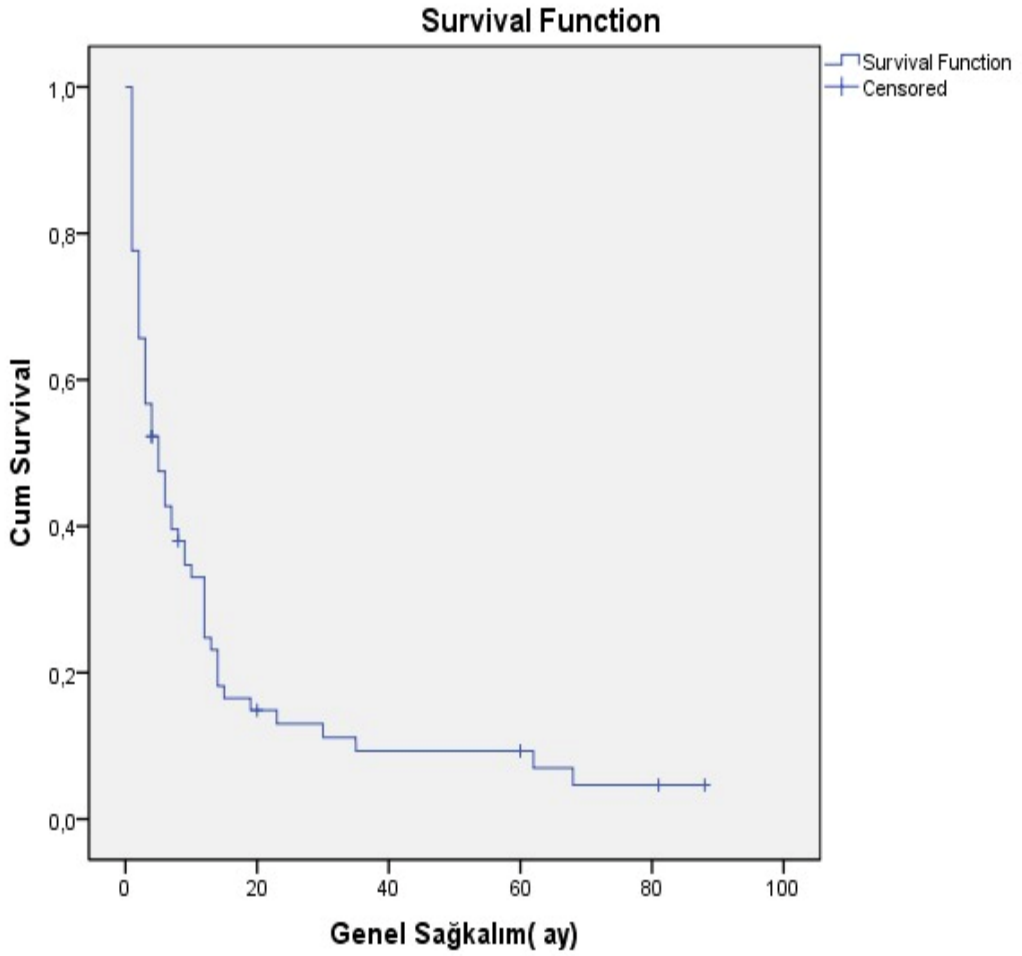
RFG	**RFG 0**	**7,5 (5)**
	RFG 1	41,8 (28)
	RFG 2	43,3 (29)
	RFG 3	7,5 (5)
Remission induction treatment	No treatment	19,4 (13)
	Intensive treatment	**53,7 (36)**
	HMA/HMA+ven	26,3 (18)
Remission status	Yes	43,3 (29)
	No	56,7 (38)
Allogeneic stem cell transplantation	Done	16,4 (11)
	Not Done	83,6 (56)

- There is no statistically significant relationship between RLD 0-1/RLD2-3 and remission (p:0.190)
- 13 patients (19%) who could not receive/refused treatment. The median age of these patients was 66 (45-89). Median survival was 2 months
- No relationship between the remission induction response between the oligoblastic group and the 30%+ blastic group

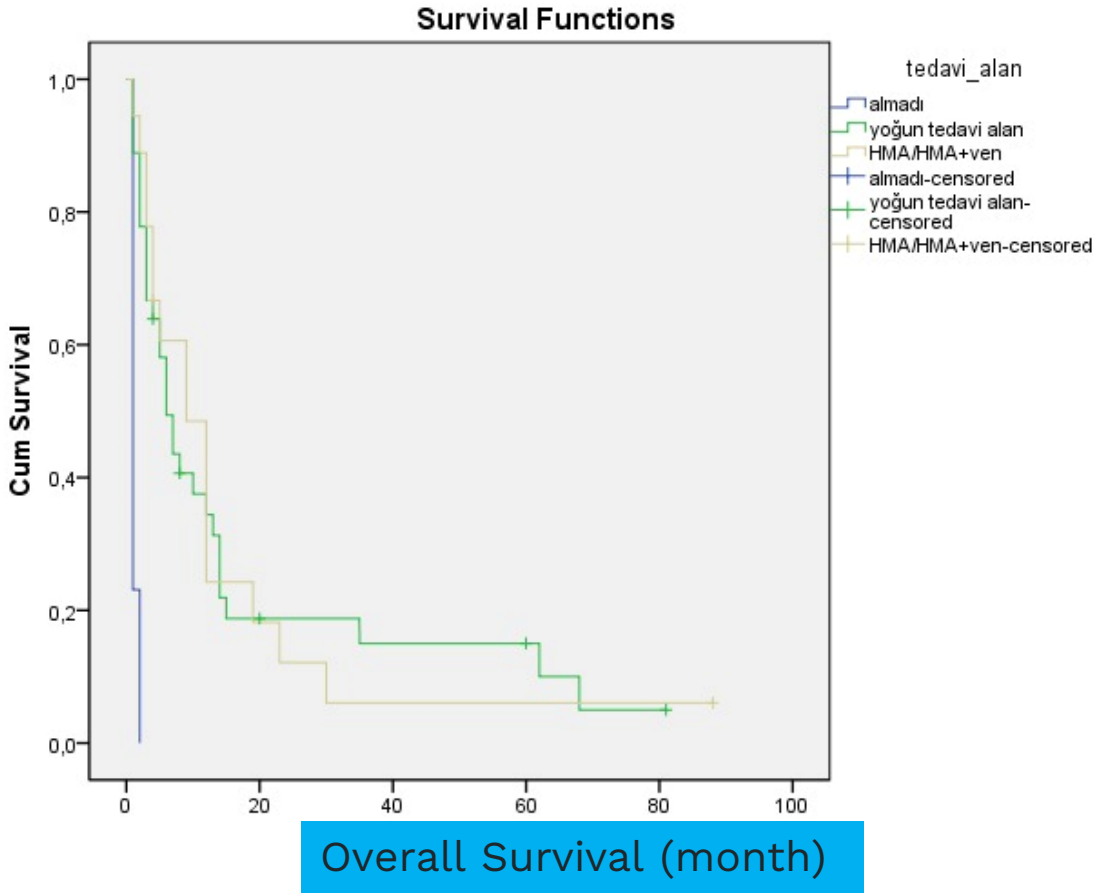
Overall Survival

- Median OS 13.4 months
- 1-year OS rate 24.8±0.5%
- 2-year OS rate 13.0±0.4%
- OS was 6 months (95% CI: 3.728–8.272) in the *intensive therapy group* and 9 months (95% CI: 4.450–13.550) in the *hypomethylating agent (HMA) and HMA+Venetoclax* therapy group.

- Remission rate is higher under the age of 60 (p = 0.019)



Intensive treatment/Less intensive treatment



Intensive treatment significantly increases remission rates. (p< 0.001)

Those Who Underwent Allogeneic Stem Cell Transplantation

- All of those who underwent allo-HSCT (11 patients) entered the transplant in remission
- 4 patients are still alive
- Median survival in the group of patients who underwent allo-HSCT is 44 months

Limitations

- No radiotherapy related AML
- Insufficient caryotype and cytogenetics

In summarise ;

- More common in older age groups
- Complex karyotype is poor prognostic
- If possible, the entire cytogenetic panel should be studied at the time of diagnosis
- Remission rate is lower at age 60 and above, less chance of receiving intensive treatment, low overall survival
- If possible, allo-HSCT should be performed at the first remission

Thank you for your attention...