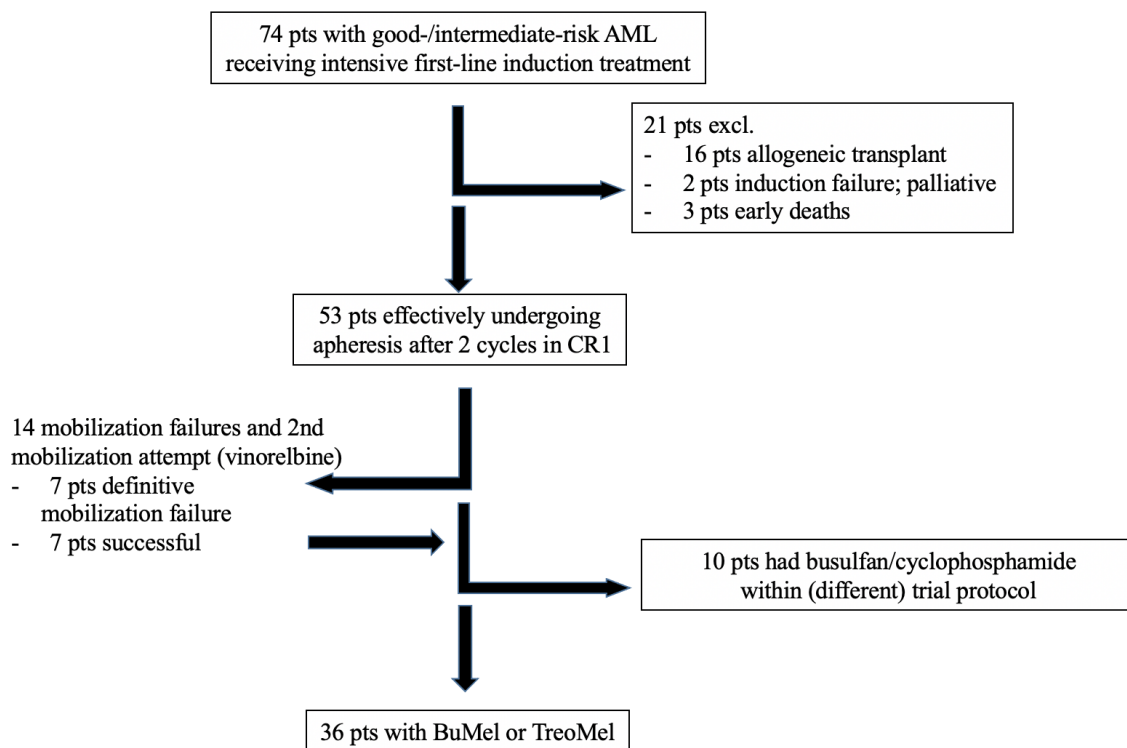


## Supplementary Materials

# Comparison of Melphalan Combined with Treosulfan or Busulfan as High-Dose Chemotherapy before Autologous Stem Cell Transplantation in AML

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**Figure S1.** Flowchart visualizing the inclusion of patients. BuMel: Busulfan + Melphalan patient cohort, TreoMel: Treosulfan + Melphalan patient cohort, AML: Acute Myeloid Leukemia, CR: Complete Remission, Pts: Patients, excl.: excluded.

**Table S1.** Cytogenetic and molecular abnormalities at diagnosis (BuMel  $n = 16$ , TreoMel  $n = 20$ ).

Genetic Abnormalities	BuMel ( $n = 16$ )	TreoMel ( $n = 20$ )	All patients ( $n = 36$ )	$p$ -value
Karyotypes				
Normal karyotype	13 (81%)	12 (60%)	25 (70)	0.277
t(9;11)(p21;q23)	0 (0%)	1 (5%)	1 (3%)	0.999
t(8;21)(q22;q22)	0 (0%)	2 (10%)	2 (6%)	0.492
inv(16)(p13.1q22)	1 (6%)	3 (15%)	4 (11%)	0.613
del(9q)	1 (6%)	0 (0%)	1 (3%)	0.999
Independent clones	0 (0%)	1 (5%)	1 (3%)	0.999
Complex karyotype	1 (5%)	1 (5%)	2 (6%)	0.999
Molecular aberrations				
AML1-ETO (RUNX1/RUNXT1)	0 (0%)	2 (10%)	2 (6%)	0.492
ASXL1	1 (6%)	0 (0%)	1 (3%)	0.999
BCOR	1 (6%)	0 (0%)	1 (3%)	0.999

<i>BCR-ABL1</i>	1 (6%)	0 (0%)	1 (3%)	0.999
<i>CBL</i>	1 (6%)	0 (0%)	1 (3%)	0.999
<i>CEBPA</i>	1 (6%)	1 (5%)	2 (6%)	0.999
<i>c-KIT</i>	1 (6%)	2 (10%)	3 (8%)	0.999
<i>DNMT3A</i>	3 (19%)	2 (10%)	5 (14%)	0.637
<i>ETV6</i>	0 (0%)	1 (5%)	1 (3%)	0.999
<i>FLT3-ITD</i>	3 (19%)	4 (20%)	7 (20%)	0.999
<i>FLT3-TKD</i>	2 (13%)	4 (20%)	6 (17%)	0.672
<i>IDH1</i>	1 (6%)	0 (0%)	1 (3%)	0.999
<i>IDH2</i>	5 (31%)	6 (30%)	11 (31%)	0.999
<i>inv(16)/CBFB-MYH11</i>	1 (6%)	3 (15%)	4 (11%)	0.613
<i>KIT D816V</i>	1 (6%)	0 (0%)	1 (3%)	0.999
<i>KRAS</i>	0 (0%)	1 (5%)	1 (3%)	0.999
<i>MLL (KMT2A) rearrangement</i>	0 (0%)	1 (5%)	1 (3%)	0.999
<i>NF1</i>	0 (0%)	2 (10%)	2 (6%)	0.492
<i>NPM1 mutation</i>	8 (50%)	8 (40%)	16 (44%)	0.737
<i>NRAS</i>	0 (0%)	2 (10%)	2 (6%)	0.492
<i>PHF6</i>	0 (0%)	1 (5%)	1 (3%)	0.999
<i>RUNX1</i>	2 (13%)	1 (5%)	3 (8%)	0.574
<i>SRSF1</i>	1 (6%)	0 (0%)	1 (3%)	0.999
<i>SRSF2</i>	1 (6%)	2 (10%)	3 (8%)	0.999
<i>TET2</i>	3 (19%)	1 (5%)	4 (11%)	0.303
<i>TP53</i>	0 (0%)	1 (5%)	1 (3%)	0.999

BuMel: Busulfan + Melphalan patient cohort, TreoMel: Treosulfan + Melphalan patient cohort.

Table S2. Overview of all toxicities experienced by patients in both cohorts.

System Organ Class (SOC)		Grade I		Grade II		Grade III		Grade IV		p
		BuMel n = 16 (%)	TreoMel n = 20 (%)	BuMel n = 16 (%)	TreoMel n = 20 (%)	BuMel n = 16 (%)	TreoMel n = 20 (%)	BuMel n = 16 (%)	TreoMel n = 20 (%)	
Metabolism and nutrition disorders	Decreased appetite	18.75	10	6.25	40	75	50	0	0	0.999
	Electrolyte imbalance	56.25	85	31.25	15	12.5	0	0	0	0.999
	Hyperglycemia	12.5	5	81.25	90	0	0	0	0	0.999
Gastrointestinal disorders	Diarrhea	50	30	0	20	25	40	0	0	0.374
	Vomiting	81.25	55	0	5	0	0	0	0	0.277
	Nausea	87.5	50	0	20	0	0	0	0	0.257
	Mucositis	31.25	35	6.25	10	18.75	15	0	0	0.999
	Constipation	68.75	55	0	10	0	0	0	0	0.999
	Colitis (neutropenic)	0	15	31.25	40	0	0	0	0	0.191
	Abdominal pain	31.25	30	12.5	10	0	0	0	0	0.999
	Dysphagia	6.25	5	6.25	0	0	5	0	0	0.999
	Gastrointestinal Reflux	37.5	0	0	0	0	0	0	0	0.004
	Fatigue	81.25	55	12.5	0	0	0	0	0	0.022
General disorders and administration site conditions	Edema limbs	50	45	0	0	0	0	0	0	0.999
	Non-cardiac chest pain	6.25	0	0	10	0	5	0	0	0.613
Renal/urinary disorders	Acute Kidney Injury	0	0	0	0	12.5	5	0	0	0.574
Nervous system disorders	Headache	12.5	15	0	5	0	0	0	0	0.672
	Peripheral sensory neuropathy	12.5	5	0	0	0	0	0	0	0.574
	Seizure	0	0	6.25	0	0	0	0	0	0.444
	Dysgeusia	43.75	35	0	0	0	0	0	0	0.734
	Dizziness	25	20	6.25	0	0	0	0	0	0.470
	Tremor	18.75	10	0	0	0	0	0	0	0.637
	Encephalopathy	6.25	0	6.25	0	0	0	0	0	0.191
Respiratory, thoracic, and mediastinal disorders	Oropharyngeal Pain	62.5	40	25	15	0	10	0	0	0.245
	Epistaxis	0	0	0	0	43.75	15	0	0	0.073
	Hiccups	0	5	6.25	5	6.25	0	0	0	0.999
Infections	Thrush	12.5	40	6.25	0	12.5	0	0	0	0.731
	Pharyngitis	0	0	25	20	0	0	0	0	0.999
	Bacteremia	0	0	43.75	35	0	0	0	0	0.734
	Sepsis	0	0	0	0	0	0	0	5	0.999
	Lung infection	0	0	6.25	5	6.25	0	0	5	0.999
	Catheter-site infections	0	0	12.5	5	12.5	0	0	0	0.149
	Skin infection	18.75	0	0	0	0	0	0	0	0.078
	Vaginal infection	6.25	0	0	0	0	0	0	0	0.444
Skin and subcutaneous disorders	Purpura	87.5	70	0	0	0	0	0	0	0.246

	Irreversible alopecia	18.75	0	25	0	0	0	0	0	0.0014
	Rash maculo-papular	6.25	20	0	10	0	0	0	0	0.104
	Pruritus	12.5	30	0	0	0	0	0	0	0.257
	Nail loss	6.25	5	25	0	0	0	0	0	0.069
	Hyperhidrosis	18.75	10	0	0	0	0	0	0	0.637
Laboratory parameters	Liver enzymes increased	43.75	35	25	35	25	20	6.25	0	0.492
	Blood LDH increased	62.5	40	0	0	0	0	0	0	0.315
	Hyperuricemia	6.25	10	0	0	0	0	0	0	0.999
Musculoskeletal and connective tissue disorders	Bone Pain	43.75	45	0	0	0	0	0	0	0.999
Vascular disorders	Hypotension	43.75	20	0	6.67	0	0	0	0	0.082
	Hypertension	6.25	10	0	15	0	0	0	0	0.196
	Thromboembolic event	0	0	6.25	0	0	0	0	0	0.444
Psychiatric disorders	Insomnia	18.75	20	0	0	0	0	0	0	0.999
Eye disorders	Dry eye	0	0	6.25	0	0	0	0	0	0.444
	Floaters	6.25	0	0	0	0	0	0	0	0.444
Hepatobiliary disorders	Ocular icterus	6.25	10	0	0	0	0	0	0	0.999
	Veno-occlusive disease	0	0	0	0	0	0	0	0	0.999
Cardiac disorders	Sinus Tachycardia	6.25	0	6.25	0	0	0	0	0	0.191
	Sinus Bradycardia	6.25	0	0	0	0	0	0	0	0.444
Immune system disorders	Others: Engraftment Syndrome	0	0	0	0	31.25	20	0	0	0.470
Injury, poisoning, and procedural complications	Graft failure	0	0	0	0	5	0	0	0	0.999

BuMel: Busulfan + Melphalan patient cohort, TreoMel: Treosulfan + Melphalan patient cohort.