

Stepan Hrabovsky, Adela Prchlikova, Samuel Hricko, Martina Filipova, Zuzana Mrkvova, Dominik Fric, Tomas Arpas, Stepan Tucek.

Background

- Nowadays, PICC is a standard intravascular access used in patients with solid tumors, lymphomas, and other non-oncological diseases requiring medium to long-term central venous access.
- However, PICC applicability in patients with acute leukemias (AL) and myelodysplastic neoplasms (MDS) can be sometimes controversial due to specific characteristics of this patient group, such as severe cellular immunodeficiency, frequent infections or a tendency towards bleeding.

Objectives and methods

- We present a retrospective analysis evaluating the feasibility and safety of PICCs in patients with AL and MDS at a major hematology-oncology center in the Czech Republic.
- Patients were divided according to diagnoses and treatment phase reflecting the specificity and risky features of AL induction treatment.
- ALL – acute lymphoblastic leukemia, AML – acute myeloid leukemia, APL – acute promyelocytic leukemia, MDS – myelodysplastic neoplasms (formerly myelodysplastic syndromes)

Results

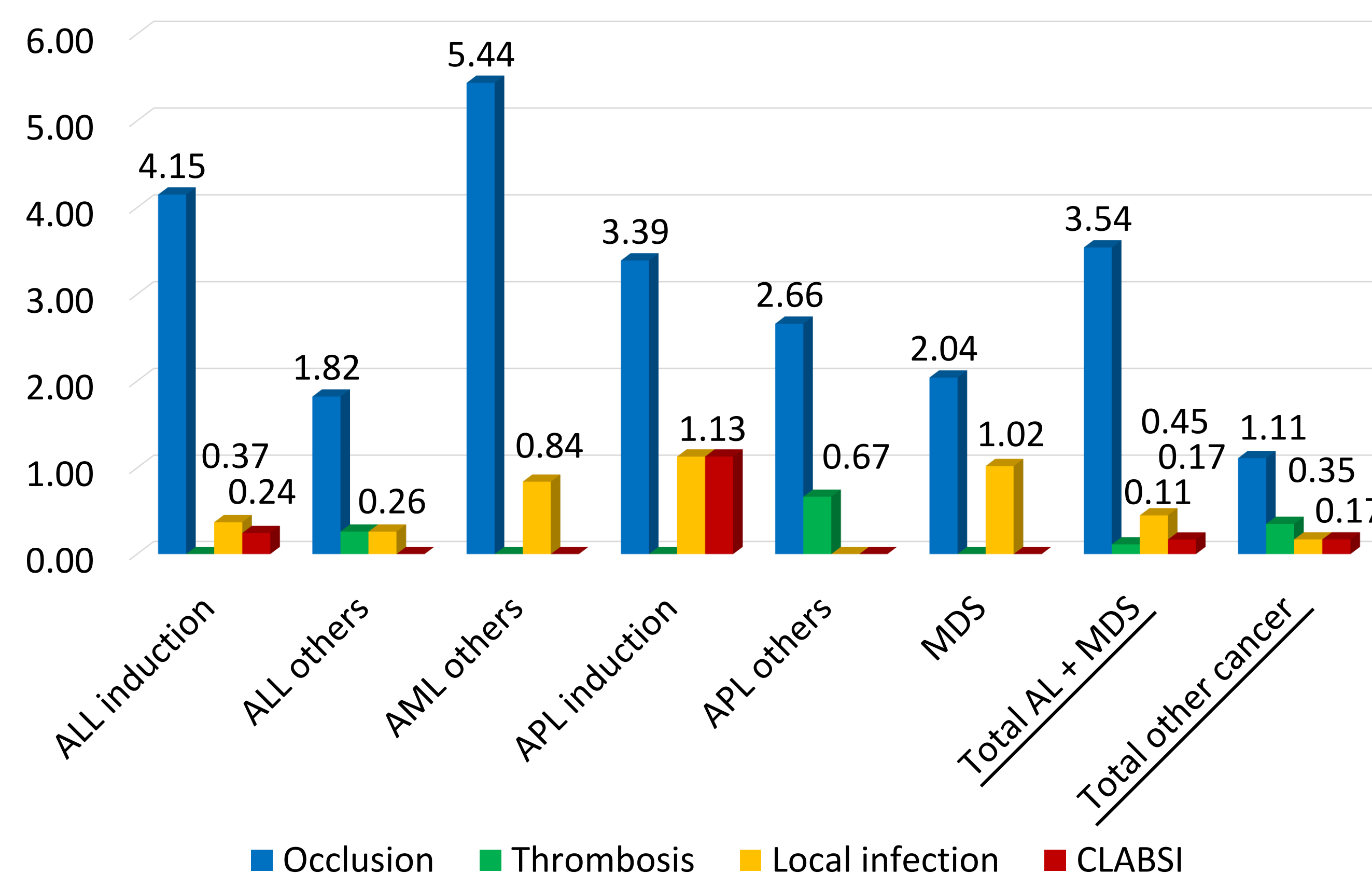
- From 2015 to 2023, we implanted **169** PICCs to patients with AL and MDS, from which **141** were already extracted and eligible for dwell-time complications analysis.
- We provide also analyses of **1785** other cancer patients PICCs implanted from 2015 to 2023 for comparison.

Results

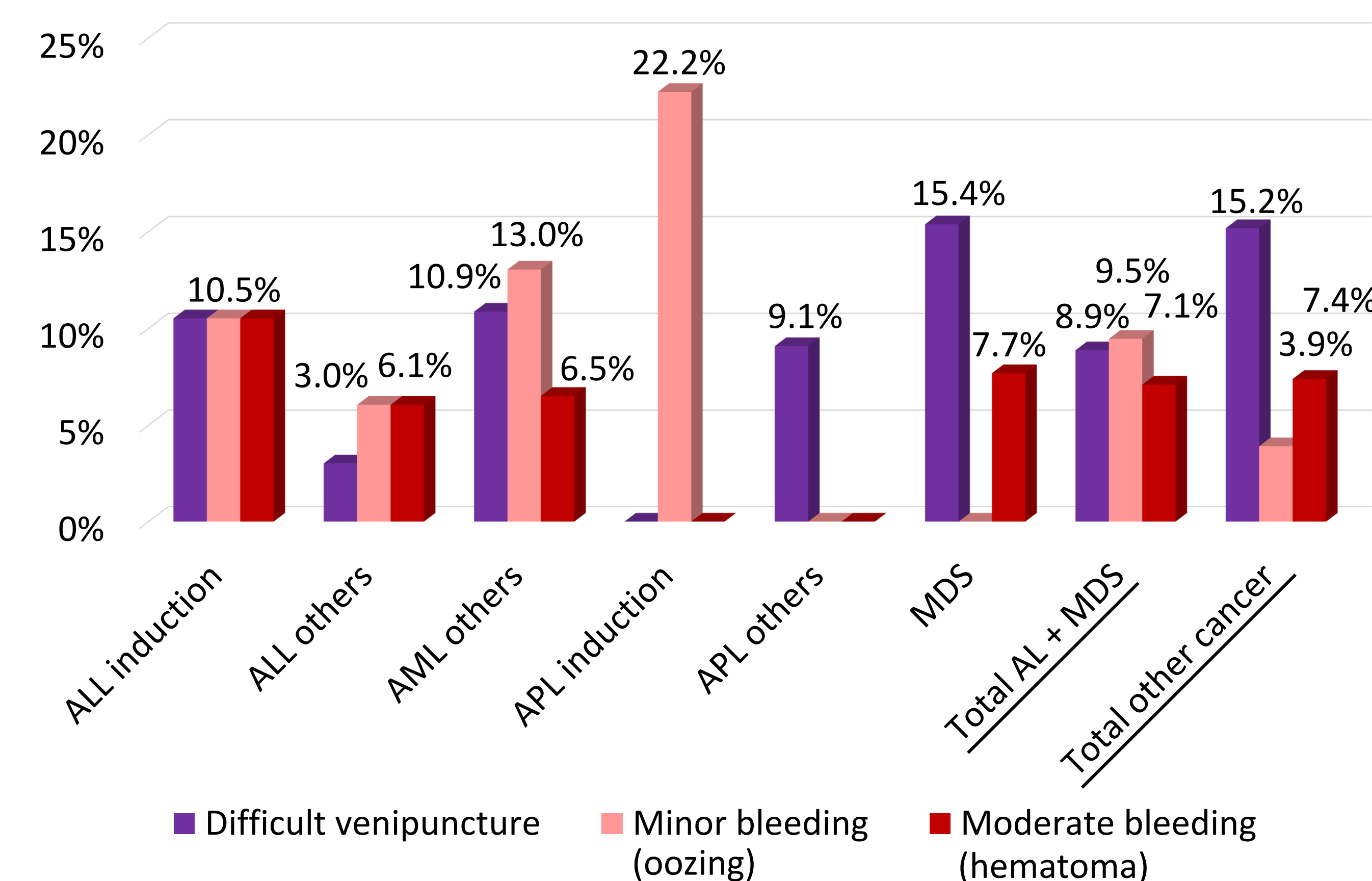
Basic statistics

Diagnosis and indication	PICCs number		Dwell time		Total catheter-days	Treatment completion rate
	Implanted	Extracted	Median days	Range days		
ALL induction	57	51	122	2–496	8195	55%
ALL others	33	31	108	27–575	3843	71%
AML induction	0	0	NA	NA	0	NA
AML others	46	29	74	2–233	2391	69%
APL induction	9	9	82	5–250	885	22%
APL others	11	11	158	2–316	1503	91%
MDS	13	10	95	8–212	980	80%
Total AL + MDS	169	141	105	2–575	17797	64%
Total other cancer	1785	1673	127	1–957	235580	68%

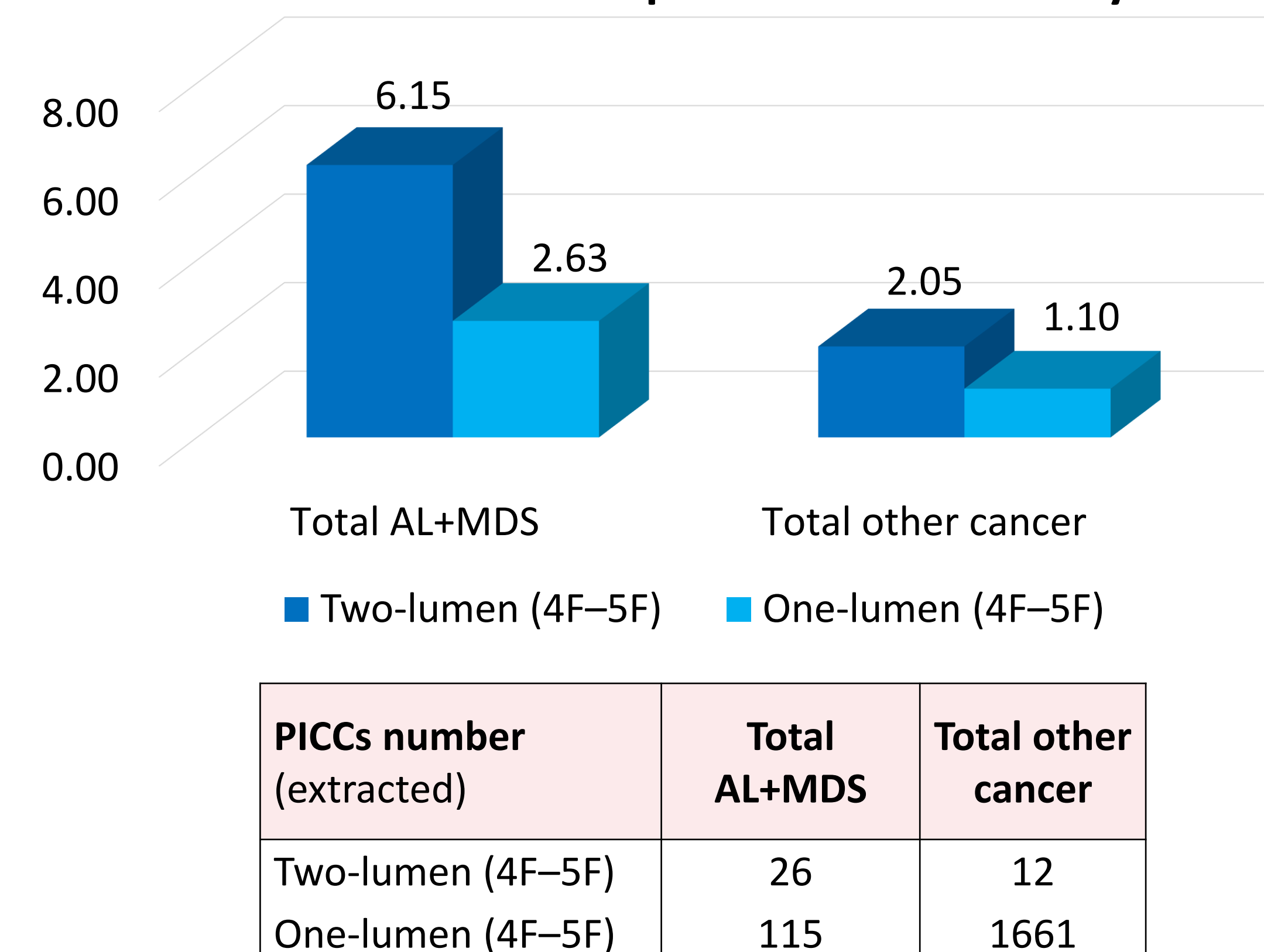
Complications per 1000 catheter-days



Periprocedural complications



Catheter occlusions per 1000 catheter-days



PICCs number (extracted)	Total AL+MDS	Total other cancer
Two-lumen (4F–5F)	26	12
One-lumen (4F–5F)	115	1661

Conclusions

- We observed a slightly increased incidence of **minor periprocedural bleeding** in AL, probably caused by severe thrombocytopenias. All these cases were easily manageable by compression.
- The higher rate of **catheter occlusions in AL** could have been partially caused by more frequent use of two-lumen catheters than in other cancers, frequent transfusions a coagulopathies.
- The **treatment completion rate** (without extraction-causing complications) in AL and MDS PICCs was the same as in other cancer PICCs.
- PICCs implanted for ALL induction treatment were **often preserved for the consolidation treatment** phase without extraction-causing complications.
- In general, **PICC seems to be a feasible and safe** intravascular access for AL and MDS patients with **very low infectious complications incidence**.
- Our analysis brings limited data on PICC feasibility for AML and APL induction treatment, warranting further research on a larger cohort.

References

- Picardi M, et al. Clin Lymphoma Myeloma Leuk. 2019;19(4):e184-e194.
- Ban T, et al. Intern Med. 2022;61(7):989-995.
- Gao T, et al. Am J Infect Control. 2022;50(10):1171-1177.

Contact hrabovsky.stepan@fnbrno.cz



Department of Internal Medicine,
Hematology and Oncology,
University Hospital Brno
and Masaryk University, School of Medicine

