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Background

The aim of this study was to evaluate the possibility of early antibiotic cessation in neutropenic patients with acute leukemia on different chemotherapy cycles.

Material/methods

Single-center, prospective observational study in adults with newly diagnosed ALL and AML was performed in 2013-2015. Patients were followed up for 180 days.

Results

- ✓ 110 adult patients (50-male, 60-female) with *de novo* acute leukemia
 - 66 AML
 - 44 ALL
 Median age 32 (17-64) years
- ✓ 480 chemotherapy cycles
 - 145 induction
 - 335 consolidation
- ✓ Antibiotics administered in 50% (n=242) of cycles (Figure 1)
 - 83% in induction vs 36% in consolidation, $p < 0.0001$
- ✓ Indications for antibiotic administration (Table 1)
 - 63% - clinically and microbiologically documented infections (CMDI)
 - 37% - fever of unknown origin (FUO)
- ✓ Antibiotics discontinued - in 32% (77/242) of fever events (Figure 2)
 - 46% in induction vs 18% in consolidation, $p < 0.0001$
 - 4 (1-19) days – median time from defervescence till antibiotic discontinuation (Table 2)
- ✓ Fever recurrence in 32% (25/77) of febrile events (Figure 3)
 - 38% in induction vs 18% in consolidation, $p = 0.11$
- ✓ Indications for antibiotic reinstatement (Figure 3)
 - 72% - CMDI
 - 28% - FUO
- ✓ Factors associated with recurrent fever (Table 3)
 - WBC at antibiotic discontinuation
 - Median time from antibiotic discontinuation till neutrophil recovery
- ✓ Results of antibiotic reinstatement
 - 100% - afebrile after antibiotic reinstatement
 - 10 (2-23) days - median duration of antibiotics
 - 0% - admission to ICU
 - 0% - mortality

Results

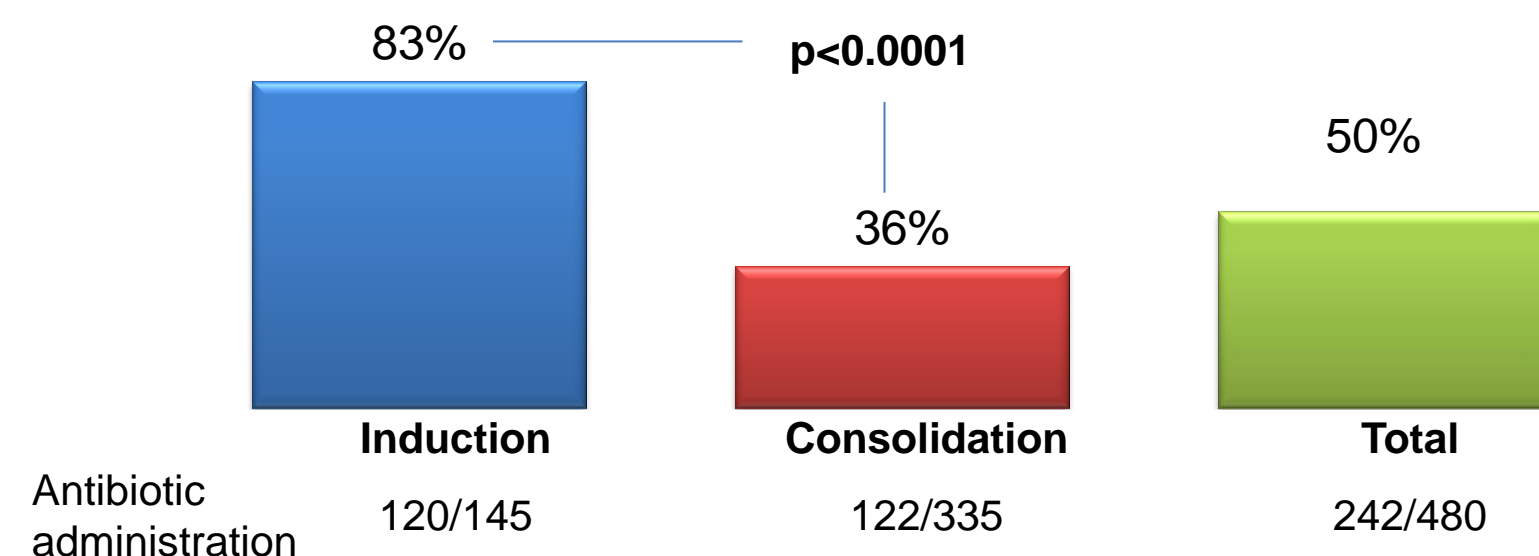


Figure 1. Rate of antibiotic administration on different chemotherapy cycles

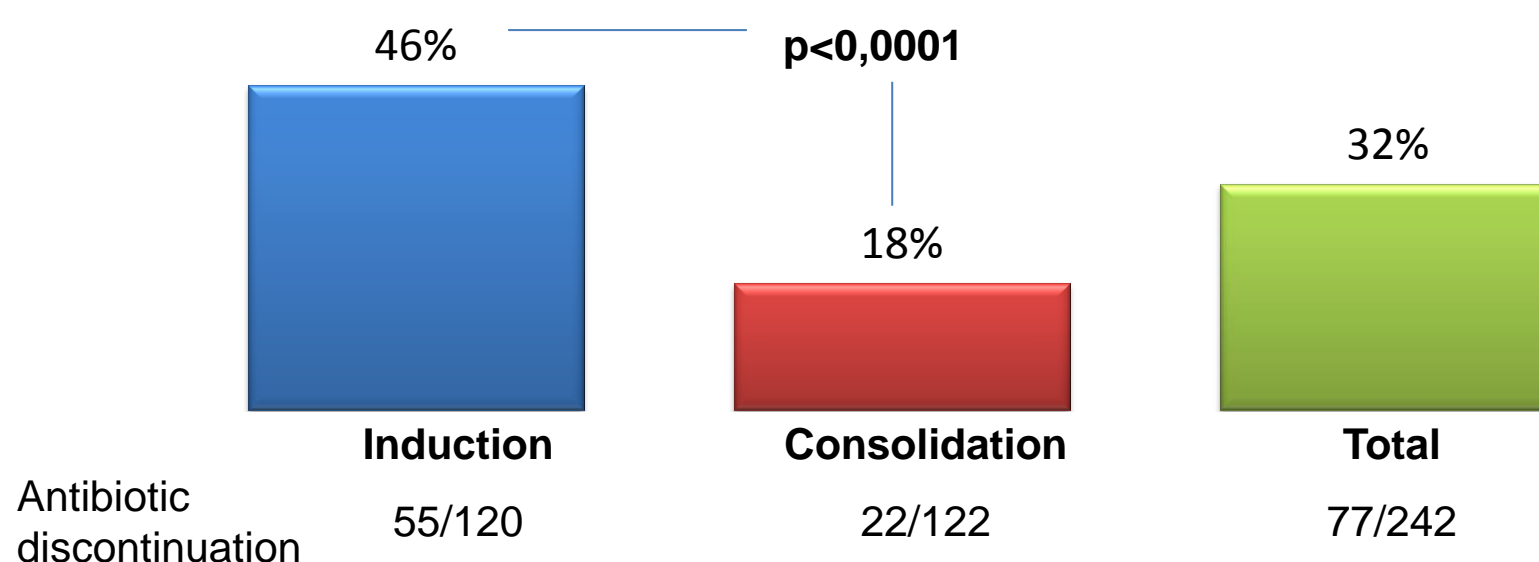


Figure 2. Antibiotic discontinuation in neutropenic patients

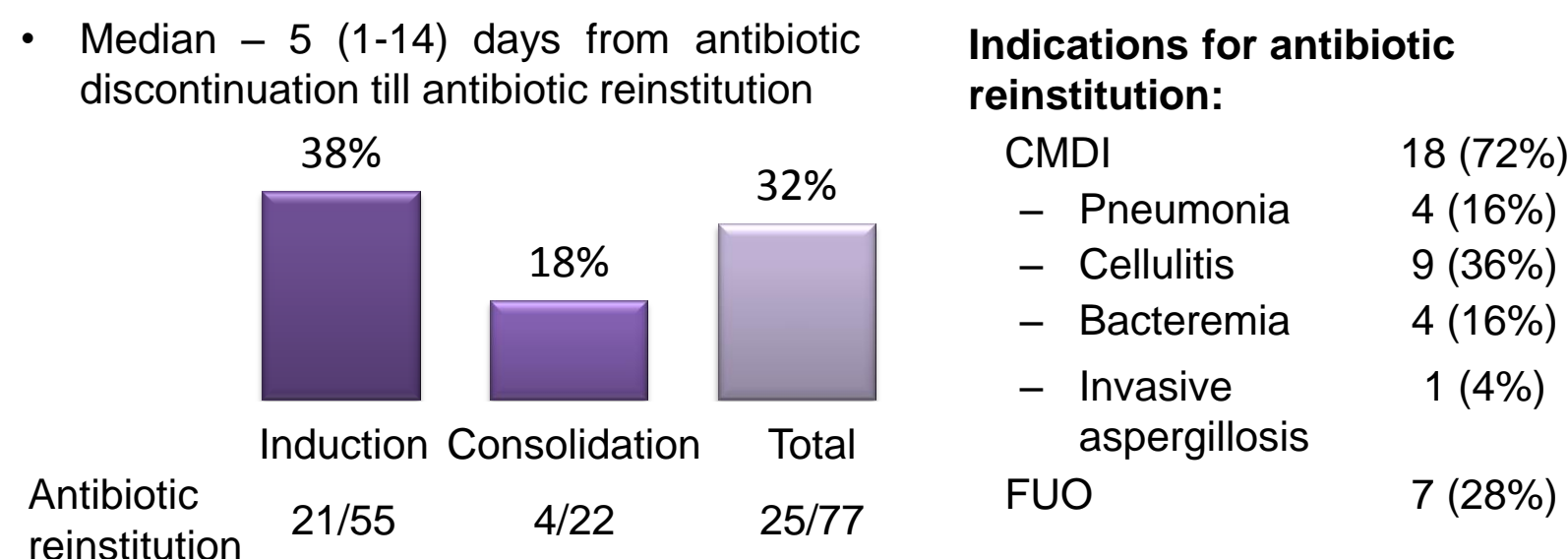


Figure 3. Antibiotic reinstatement in neutropenic patients

Table 1. Indications for antibiotic administration

	N (%)
CMDI	153 (67%)
– Pneumonia	61 (25%)
– Cellulitis	47 (19%)
– Bacteremia	45 (19%)
FUO	89 (37%)
Total	242

Table 2. Time parameters of antibiotic discontinuation in neutropenic patients

	Induction	Consolidation
Days from defervescence till antibiotic discontinuation	4 (1–19)	4 (1–12)
– FUO	3 (1–16)	3 (1–11)
– CMDI	4 (1–19)	4 (1–12)
Days from antibiotic discontinuation till neutrophil recovery	12 (1–41)	5 (1–22)

Table 3. Factors associated with recurrent fever after antibiotic discontinuation

	Fever recurrence		p
	Yes n=25	No n=52	
WBC ($10^9/L$) at antibiotic discontinuation	0.4 (0.1–0.9)	0.7 (0.1–0.9)	0.0006
Days from antibiotic discontinuation till neutrophil recovery	15 (7–41)	7 (1–28)	<0.0001
Mortality	0	0	-

Conclusions

The antibiotic therapy may be stopped in persistently neutropenic patients with acute leukemia. Relapse of fever was observed in 32% of patients with prolonged neutropenia but did not affect mortality.