

Efficacy of Cefoxitin for the treatment of urinary tract infection (UTI) due to ESBL-producing *E. coli* and *K. pneumoniae* isolates

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Introduction

- Cefoxitin (FOX) is a cephamycin which has a good *in vitro* activity and is resistant to hydrolysis by ESBLs
- Good candidate for the treatment of urinary tract infection (UTI)
- Failures have been described, especially for wild *Klebsiella pneumoniae* (KP) isolates, but few description regarding ESBLs

Objectives

- Comparison of effectiveness of cefoxitin in the treatment of ESBLs *E. coli* vs *KP* in UTI
- Evaluation of the emergence of resistance to FOX, especially for *Klebsiella* isolates

Methods

- Monocentric retrospective cohort study
- Identification of patients from the prescription software, and collection of data from the computerized medical files
- Inclusion criteria: cefoxitin for the treatment of ESBLs UTI
- Exclusion criteria: are detailed below

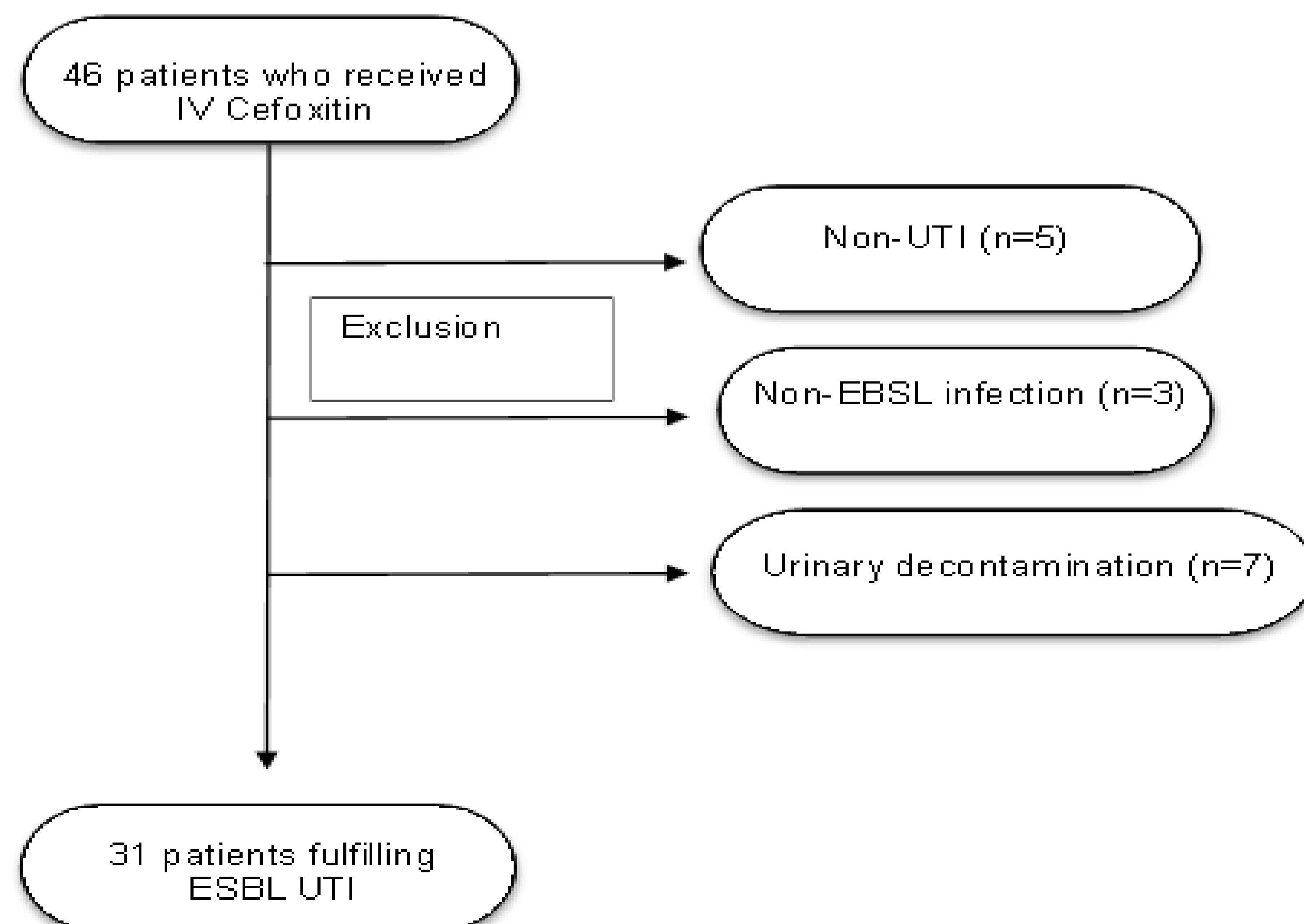


Figure 1. Flow-chart of the studied population. All patients included presented UTI due to a ESBL isolate

Results

	ESBL <i>E. coli</i> (N=17)	ESBL <i>K.P</i> (N=14)	p-value
Patients			
• Sex (male), N (%)	12 (70.6)	11 (78.6)	0.69
• Age, mean (±SD) (in years)	62±17.9	57±18.1	0.41
• Underlying condition N (%)			0.99
• Neurological disorder*	7	8	-
• Immunocompromised**	2	2	-
• Urological disease***	5	6	-
• Diabetes	2	1	-
• Chronic kidney failure	2	1	-
• Charlson comorbidity index median (min-max)	4 (0-10)	4.5 (1-9)	0.29
Infection characteristics			
• Site of infection, N (%)			
• Pyelonephritis	11 (64.7)	11 (78.7)	0.45
• Prostatitis	4 (23.5)	1 (7.1)	0.34
• Orchitis	2 (11.8)	1 (7.1)	0.99
• Cystitis	-	1 (7.1)	0.45
• Abscess, N (%)	1 (5.9)	1 (7.1)	0.99
• Concomitant bacteremia, N (%)	3 (17.7)	2 (14.2)	0.99
• Criteria of severity (including sepsis)	-	-	-
Antibiotic regimen			
• Median duration of Cefoxitin therapy (min-max)	10 (5-21)	10 (5-21)	0.41
• Median dose (min-max)	4 (2-8)	6 (3-6)	0.53

- 1 case of resistance to FOX reported in the KP group (p NS)
- Lack of difference in the clinical course of patients treated with cefoxitin for UTI between ESBLs *E. coli* and *KP*

Limits

- Small sample size but the largest one reported in the literature for UTI, including KP ESBL
- No control using a systematic CBEU (not recommended), limiting the screening of potential mutants

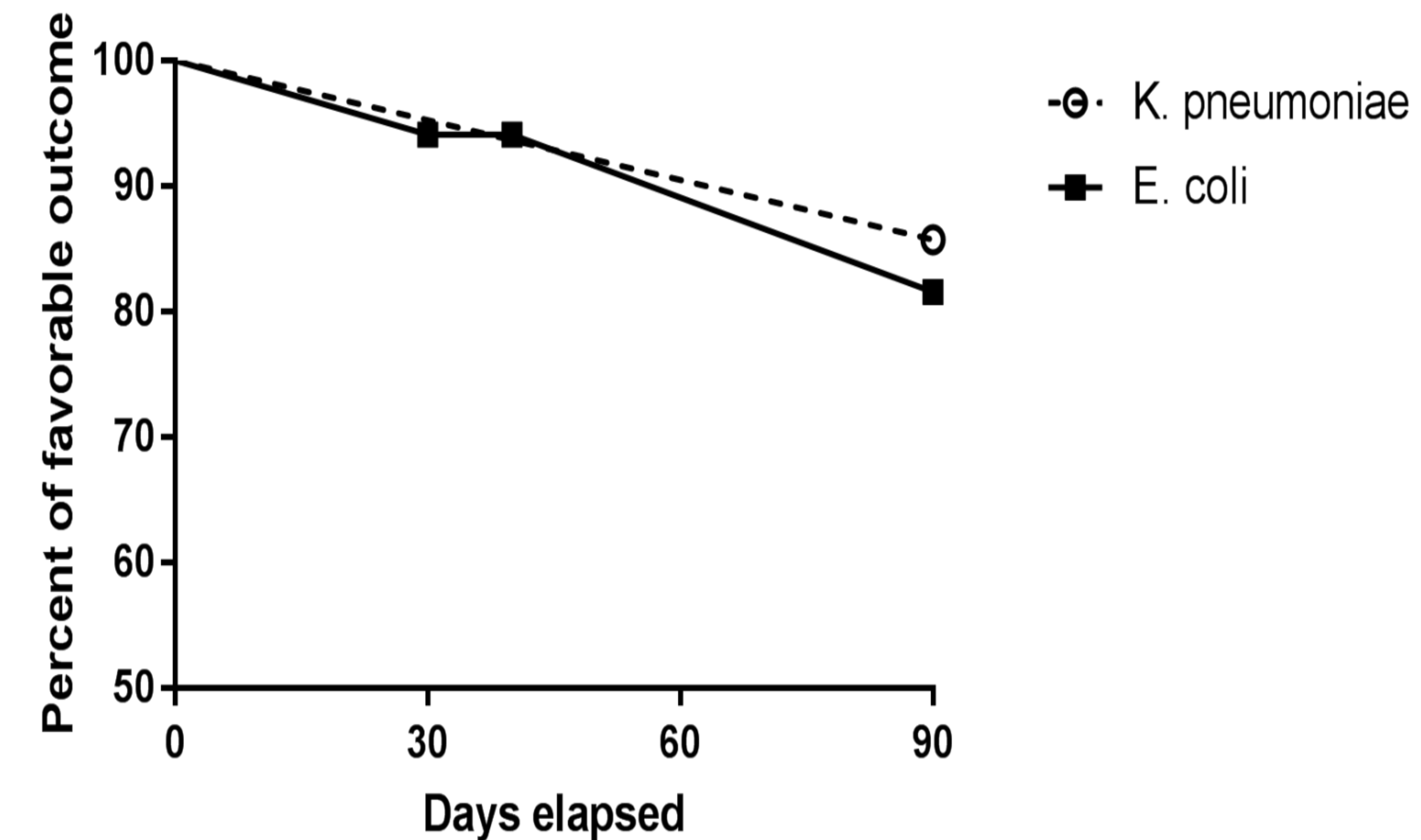


Figure 2: Outcome at D30/D90 after treatment, showing no statistical difference between *E. coli* and *KP* isolates (p=NS)

Discussion

- These data are encouraging and interesting in a carbapenems sparing era
- Clinical cure was achieved in 81.2% of cases for ESBL *E. coli* vs 85.7% in the *KP* group at D90
- Study included spine cord injured patients due to the local hospital epidemiology
- Larger sample size studies are needed to support our findings and evaluate precisely the risk of emergence of resistant strains after FOX therapy

Conclusion

FOX seems to be an acceptable regimen with an overall success rate at D90 of 83.3%, including ESBLs *E. coli* + *KP*