Pharmacist–patient consultations improve adverse event management and knowledge during oral antibiotic therapy for bone and joint infections: the EFIRAD prospective randomized trial

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4CPS-114

BACKGROUND

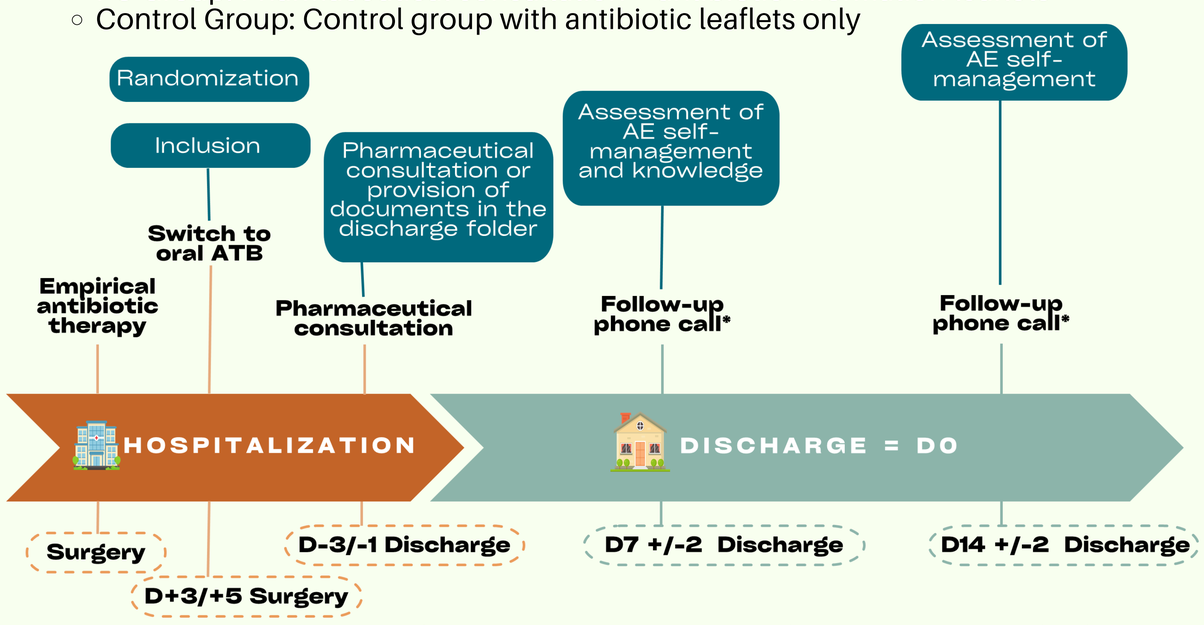
- According to Curran et al., each additional day of antibiotic therapy is associated with a significant 4% increase in adverse effects (AE).
- The main causes of non-adherence reported by patients concern five issues: digestive AE, missed doses, hepatic disorders, tendinopathies, and allergic reactions.
- In 2018, pharmaceutical consultations were implemented for patients discharged with long-term antibiotic therapy for osteoarticular infections, along with discharge prescriptions including symptomatic treatments for digestive adverse effects

AIM & OBJECTIVES

- Evaluate the **impact of pharmaceutical consultations** in the context of oral treatment for osteoarticular infections on the management of antibiotic-related adverse effects after discharge
- Assess the causes of suboptimal management, to analyze patients' acquisition of knowledge, and to describe antibiotic tolerance between Day 0 and Day 15

MATERIALS & METHODS

- A single-center, controlled, randomized study classified as low-risk interventional research (RIPH2)
- 2 groups:
  - PC Group: Pharmaceutical consultation + antibiotic information leaflets
  - Control Group: Control group with antibiotic leaflets only



• Conducted by a pharmacist blinded to the randomization group

- A decision tree for evaluating adverse effect management and a validated knowledge assessment grid (12 questions) were used.
- Statistical analysis: Chi-square test to compare groups for adverse effect management and knowledge; mean, standard deviation, median, first and third quartiles, and frequency (%) for other data.

RESULTS

Inclusion period: March 2022 to April 2024
84 patients at Day 7 and 78 patients at Day 14

The groups were comparable in age, sex, type of infection, and prescribed antibiotics.

	AE at D7		AE at D14	
	n=	%	n=	%
Patient with at least one AE	62	73.8	46	59
Severity of AE				
Patient with grade 1 AE	48	57.1	38	48,7
Patient with grade 2 AE	8	9.50	7	9
Patient with grade 3 or more	6	7.50	1	1,3
Number of AE reported	113		72	
Severity of AE				
Grade 1	95	84.1	62	86,1
Grade 2	10	8.90	9	12,5
Grade 3	8	7.100	1	1,4
Types of AE				
Gastrointestinal disorders	81	71.7	41	56,9
Nervous system disorders	6	5.30	6	8,3
Psychiatric disorders	2	1.80	1	1,4
Cardiac disorders	1	0.9	1	1,4
Musculoskeletal disorders	3	2.70	5	6,9
Immune system disorders	2	1.80	2	2,8
Infections	4	3.50	8	11,1
Liver function abnormalities	4	3.50	4	5,6
General disorders	10	8.90	4	5,6

Management of antibiotic adverse effects at home

Self-management of antibiotic AE at home

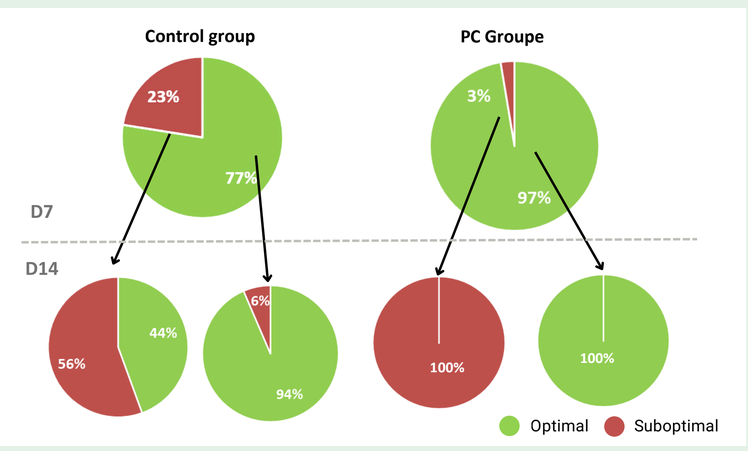
	PC Group		Controle group		p=
Overall AE self-management at Day	**n**	**%**	**n**	**%**	
Optimal	**39**	**95%**	**34**	**79%**	**0,029**
Suboptimal	**2**		**9**		
Overall AE self-management at Day	**n**	**%**	**n**	**%**	
Optimal	**37**	**97%**	**34**	**85%**	**ns**
Suboptimal	**1**		**6**		

Management of Antibiotic AE at Home: PC Groupe > Control Groupe at Day 7

Reasons for non-compliance:

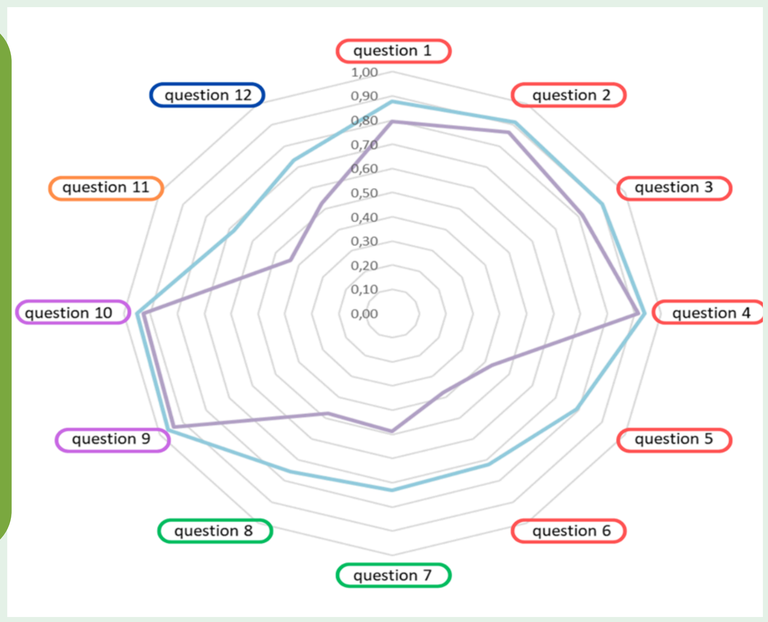
- PC Group: Misuse of symptomatic treatments (n = 1); failure to seek medical advice after grade 3 hypersensitivity reaction (n = 1)
- Control Group: Non-use or misuse of digestive AE treatments (n = 7); failure to seek medical advice for non-digestive adverse effects (n = 2)

Influence of the Day 7 Consultation on Self-Management at Day 14



Behavioral changes in the Control Group after the Day 7 consultation were observed in 44% of initially non-compliant patients.

Antibiotic-related knowledge



Legends

- Antibiotic therapy: formulation, dosage, duration and administration instructions
- Adverse events
- Therapeutic monitoring
- Drug interactions
- Medical contact & designated contact person

Control group

PC group

A **statistically significant difference** was observed between the two groups (p = 0.0019), with **73.2% of patients in the PC group** demonstrating an adequate level of knowledge versus 37.2% in the control group.

CONCLUSION & RELEVANCE

1 **EFIRAD is the first prospective randomized comparative study assessing the impact of pharmaceutical consultations on the management of antibiotic-related adverse effects.**

This study highlights the impact of clinical pharmacy activities on patient management and knowledge regarding their treatment

- It emphasizes the role of pharmaceutical consultations in **managing mild but very frequent adverse effects**, which affect quality of life and may compromise patient adherence
- A clear difference in **antibiotic-related knowledge was observed between the two groups**, particularly for more specific information beyond basic knowledge (name of the antibiotic, administration modalities, and biological monitoring). These consultations **promote patient autonomy by encouraging critical thinking, raising awareness of risky situations, and preventing risks outside the healthcare pathway** (drug interactions and herbal medicine).
- They also help **identify key healthcare professionals** for patient follow-up.

These **consultations promote patient autonomy, ensure safer discharge, and position pharmacists as key stakeholders** **in continuity of care**. This intervention model opens concrete perspectives for integration into post-hospital care pathways, pending validation on a larger scale.

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