

ANTIMICROBIAL TREATMENT INADEQUACY IN AN EMERGENCY DEPARTMENT

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BACKGROUND & PURPOSE

The fast turnover of patients make the Emergency Department Observation Units (EDOU) a complex setting for antimicrobial stewardship interventions. To identify modifiable factors to improve inappropriate antimicrobial prescriptions (AT) can help in the design of targeted interventions. Our objective was to identify modifiable factors related to inadequate AT in the EDOU by performing repeated point prevalence surveys (PPS).

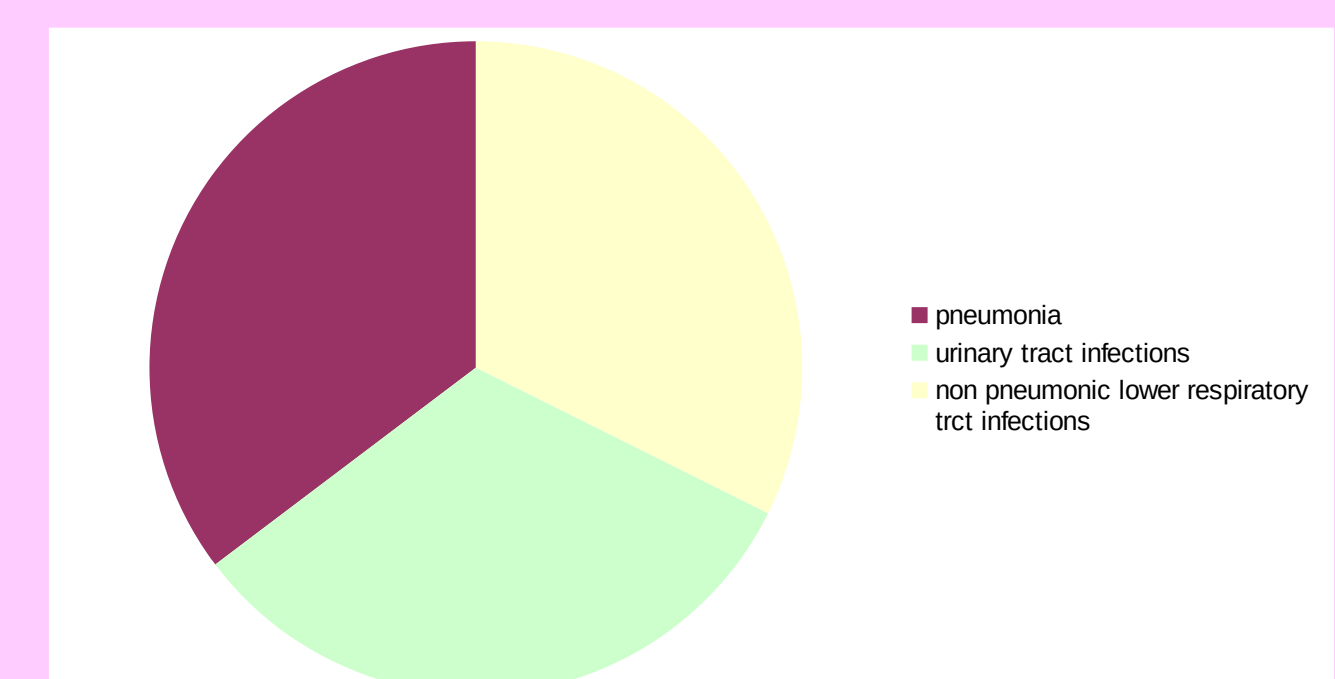
MATERIAL AND METHODS

all antimicrobial prescriptions for non-trauma patients admitted to the EDOU was performed daily for 5 consecutive weeks starting on February 2015 in tertiary hospital. Data included demographics, clinical assessment performed by the prescriber, microbiological samples taken, and antimicrobial prescriptions including the drug, dose and route of administration, if empirical or targeted, and mono or combination. Multivariate analysis was performed using logistic regression.

RESULTS

Overall, 406 ATs were analysed. AT were inadequate (26% of them: drug with a reasonable spectrum was prescribed despite not being recommended as first line, 45% 'antibiotic not needed'; 25% inadequate spectrum', and 4% others. The predictors for inadequate AT in the univariate analysis are described in Figure 1. In multivariable analysis, microbiological samples before AT (OR: 1.9; 95%CI: 1.2-2.8; p=0.004), specification of the source of infection in patient's charts (OR: 2.0; 95%CI: 1.1-4.2; p=0.05), and severe sepsis or shock (OR: 1.9; 95%CI: 1.2-2.9; p=0.003) were independent predictors of adequate AT.

		% Global (n)	%IN (n)	p	RR (IC 95%)
Prescription type	Empirical	96.6 (392)	53 (208)	0,01	7,4 (1,1-49,2)
	Targeted	3.4 (14)	7 (1)		
Acquisition	Community	66.5 (270)	52 (140)	0,5	
	Health-care related acquisition	32.3 (131)	52 (68)	Ref.	Ref.
	Nosocomial	1.2 (5)	60 (3)	0,4	
Source described by prescriber	No	10.8 (44)	73 (32)	0,03	1,9 (1,1-3,0)
	Yes	89.2 (362)	49 (177)		
Severity assessed by prescriber	No	4.9 (20)	50 (10)	0,9	-
	Yes	95.1 (392)	52 (204)		
Microbiological samples taken	No	53.9 (219)	61 (133)	<0,01	1,5 (1,2-1,8)
	Yes	46.0 (187)	41 (73)		
Severity assessment at onset	No sepsis	68.5 (278)	58 (161)	0,04	-
	Sepsis	25.8 (105)	38 (40)	0,46	-
	Septic shock	5.7 (23)	39 (9)	Ref.	Ref.
	CNS infections	0.2 (1)	0 (0)	0,67	-
Clinical syndromes	Pneumonia	23.9 (97)	33 (32)	Ref.	Ref.
	COPD	11.3 (46)	39 (18)	0,5	-
	Upper respiratory tract infection	1.7 (7)	43 (3)	0,43	-
	Others respiratory syndromes	21.7 (88)	63 (55)	<0,01	1,9 (1,4-2,6)
	Urinary tract infections	21.9 (89)	53 (47)	<0,01	1,6 (1,1-2,3)
	Intraabdominal	4.2 (17)	65 (11)	<0,01	2,0 (1,2-3,1)
	Biliary tract infections	5.9 (24)	67 (16)	<0,01	2,0 (1,4-3,0)
	Gastroenteritis	2.5 (10)	70 (7)	0,03	2,1 (1,3-3,5)
	Skin and Soft tissue Infections	2.9 (12)	75 (9)	<0,01	2,3 (1,5-3,5)
	Source unknown	2.7 (11)	91 (10)	<0,01	2,7 (2,0-3,9)
Combinated therapy	Yes	0.9 (4)	50 (2)	0,4	-
	No	13.5 (55)	53 (29)		
Antimicrobial (Monotherapy)	Amoxicillin/Ampicillin	1.1 (4)	25 (1)	0,7	-
	Amoxicillin/clavulanate	45.0 (158)	58 (92)	0,04	-
	Piperacillin/Tazobactam	11.7 (41)	59 (24)	0,05	-
	Cefuroxime	0.3 (1)	100 (1)	0,3	-
	Ceftriaxone/Cefotaxime	16.8 (59)	29 (17)	0,5	-
	Cloxacillin	0.3 (1)	100 (1)	0,3	-
	Ertapenem	2.6 (9)	22 (2)	Ref.	Ref.
	Meropenem/Imipenem	0.6 (2)	0 (0)	0,6	-
	Ciprofloxacin	6.3 (22)	100 (22)	<0,01	4,5 (1,3-15,3)
	Levofloxacin	14.3 (50)	40 (20)	0,3	-
	Clarithromycin	0.3 (1)	0 (0)	0,8	-
	Fosfomycin-Trometamol	0.6 (2)	50 (1)	0,5	-



CONCLUSIONS

Half of the prescriptions were inadequate using very strict criteria. Interventions aiming at improving antibiotic use in this Unit should include education and promotion of optimal clinical procedures for antibiotic prescribing.

Quality indicators such as taken microbiological samples and the description of source of infection in medical chart were predictors of better AT.