

Preliminary results of an antimicrobial stewardship intervention on community-acquired pneumonia in a teaching hospital.

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Background.

- Adherence to certain quality indicators (QI) related to CAP management is associated with best clinical, ecological and cost results.
- The aim of this study is to evaluate the impact of a non-compulsory, structured antimicrobial stewardship intervention focused on CAP management in a teaching hospital.

Methods.

A quasiexperimental, before-after intervention study including all adults admitted with CAP to a 900-bed teaching hospital between October 2013 to August 2014 (pre-intervention cohort) and between October 2014 to August 2015 (intervention cohort) was performed.

The intervention consisted on:

- Educational sessions on the updated local guidelines
- Advisory audits of management of patients with CAP on 1st, 3rd and 5-7th day after admission, including the following QI:
 - (1) assessment of risk estimation;
 - (2) empiric and targeted treatments according to local guideline;
 - (3) microbiological samples collection before antibiotic treatment (AT);
 - (4) switching AT to oral and discharge; and
 - (5) appropriate duration of AT.

Pre and post-intervention cohorts were compared for clinical features, epidemiology and prognosis (length of stay [LOS], 30-day mortality and 90-day readmission rate) and adherence to the QI using chi squared test and Mann-Whitney U test.

Results

• 255 patients were included in the pre-intervention cohort and 244 in the intervention one.

• Comparative analysis of clinical, epidemiology, therapeutics and prognosis features between cohorts are shown in Table 1.

• Comparison of CAP QI compliance between cohorts in shown in Table 2.

• The rate of adherence to QI was statistically higher in the intervention cohort in all the indicators registered.

TABLE 1 Factors	Pre-intervention N=255 % (no.)	Post-intervention N =244 % (no.)	p
Male	63 (160)	54 (130)	0.05
Age (median, IQR)	78 (69-85)	78 (67-89)	NS
CURB (median, IQR)	2 (1-3)	2 (2-3)	NS
PSI index (median, IQR)	3 (2-3)	3 (1-3)	NS
Charlson index (median, IQR)	1 (0-2)	2 (0-3)	NS
Diabetes	32 (82)	42 (103)	0.02
COPD	31 (78)	22 (53)	0.03
Aspiration pneumonia	5 (12)	11 (27)	0.02
Combination therapy (total)	49 (124)	35 (86)	0.04
Days of IV AT (median, IQR)	6 (4-8)	4 (2-6)	0.003
Total AT duration (median, IQR)	11 (8-14)	9 (7-11)	NS
Length of stay (average, SD)	8.7 (5.1)	6.9 (4,4)	0.02
30-day mortality	4 (9)	5 (12)	0.5
90-day readmission	23 (58)	10 (24)	0.001

TABLE 2 Indicator	Pre-intervention N=255 % (no.)	Post-intervention N =244 % (no.)	RR (95% CI)	p
Risk estimation	20 (51)	55 (135)	2.8 (2.1-3.6)	<0.001
Samples taken before therapy	42 (108)	92 (225)	2.2 (1.9-2.5)	<0.001
Empiric therapy according to guidelines	59 (150)	86 (209)	1.5 (1.3-1.6)	<0.001
Oral switching (3rd-5th day)	19 (42)	60 (98)	2.4 (1.8-3.3)	<0.001
Total duration of antibiotics ≤7days	23 (53)	47 (109)	2.2 (1.6-2.8)	0.03

Conclusion

➢ A non-compulsory intervention based on QI indicators was effective to improve CAP management.

➢ The rate of readmissions, LOS and duration of intravenous AT were significantly shorter in the intervention cohort, without affecting 30-day mortality.

