COPD: severity risk factors (RF) and evaluation of medication use

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Setting and methods

2 years retrospective case-series study of 43 patients hospitalized for Acute Exacerbations of Chronic Bronchitis (AECB) in 5 Belgian hospitals :

- main criterion for enrolment: *S. pneumoniae* isolated in the sputum (microbiological data not included)

- multivariate analysis : Odds ratios with 95% confidence intervals and p-value (Fisher's exact test + Woolf approximation)

- analysis of :
• severity (GOLD; hospitalization length)
• risk factors (RF; age, tobacco addiction, gender, living place)
• medications for COPD or other pathologies

Main outcome

Evaluation of COPD Risk factors (RF) for severity and drugs at admission in patients hospitalized with AECB
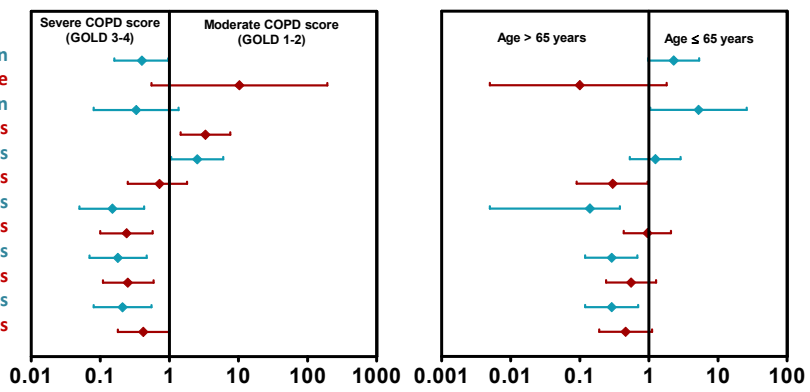
Results

Forest plots represent the odds ratios (with 95% CI) for factors associated with respectively GOLD classification scores of COPD severity (left panel) and with age, one risk factor (right panel).
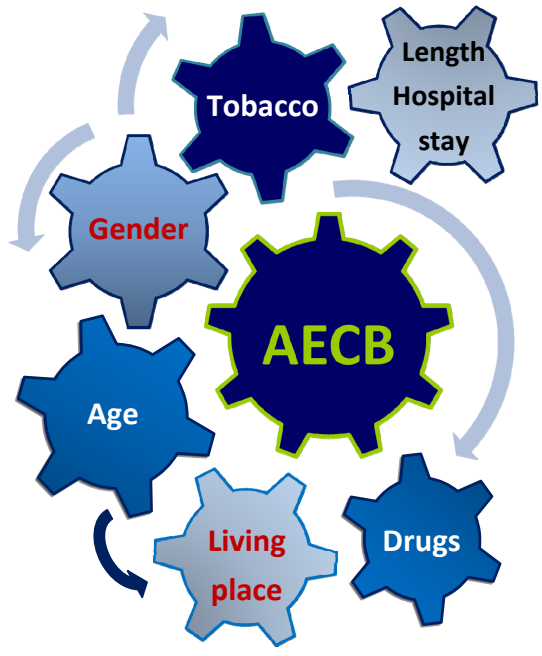
Patients' characteristics	OR with 95% CI and p-value (Multivariate analysis using Fisher's exact test + Woolf approximation)				Percentage in whole population
	COPD severity (GOLD 1-2)	Hospitalization ≤ 10 days	Age ≤ 65 years	Smoking habit ≤ 20 Pack Years	
Men	0,40 (0,16-0,96) *p = 0.054*	0.80 (0.33-1.92) ns	2.28 (0.97-5.33) *p = 0.0858*	0.38 (0.12-1.23) ns	33
Nursing home (NH)	10,33 (0,55-192,23) *p = 0.0602*	0.04 (0.002-0.72) p < 0.01	0.10 (0.005-1.80) *p = 0.0602*	60.12 (3.33-1086.9) P <0.0001	5
Psychiatric institution (PI)	0.33 (0.08-1.35) ns	1.72 (0.34-8.80) ns	5.23 (1.05-26.04) p < 0.05	0.09 (0.005-1.53) p < 0.05	9
≤ 65 years	3.32 (1.45-7.63) p < 0.01	1.24 (0.53-2.87) ns	/	0.30 (0.09-0.96) p < 0.05	46
Hospitalization ≤ 10 days	2.53 (1.06-6.01) *p = 0.0524*	/	1.24 (0.53-2.87) ns	3.31 (1.03-10.62) p < 0.05	68
Smoking habit ≤ 20 Pack Years (PY)	0.72 (0.25-1.80) ns	3.31 (1.03-10.62) p < 0.05	0.30 (0.09-0.96) p < 0.05	/	25
β2-agonists intake	0.15 (0.05-0.43) p < 0.001	3.07 (1.26-7.47) p < 0.05	0.14 (0.05-0.38) p < 0.001	2.04 (0.63-6.66) ns	70
Short-acting bronchodilators intake	0.24 (0.10-0.57) p < 0.01	0.81 (0.35-1.87) ns	0.95 (0.43-2.09) ns	1.67 (0.64-4.34) ns	58
Long-acting bronchodilators intake	0.18 (0.07-0.47) p < 0.001	4.33 (1.78-10.54) p < 0.001	0.29 (0.12-0.68) p < 0,01	2.04 (0.63-6.66) ns	65
Short + long-acting β2-agonists intake	0.25 (0.11-0.59) p < 0.01	1.36 (0.57-3.25) ns	0.55 (0.24-1.27) ns	1.31 (0.54-3.21) ns	37
Inhaled corticosteroids intake	0.21 (0.08-0.55) p < 0.01	2.58 (1.08-6.17) p < 0.05	0.29 (0.12-0.70) p < 0.01	25.59 (1.49-438.10) p < 0.001	67
PPIs intake	0.42 (0.18-0.99) *p = 0.0555*	0.80 (0.33-1.92) ns	0.46 (0.19-1.11) *p = 0.0912*	0,50 (0,19-1,3) ns	33

Conclusions

• Age and male sex are RF for COPD severity. Hospitalization length increases with a deep smoking habit and for patients coming from NH.

• Nursing home (NH) patients were older and present less severe COPD scores, possibly because of lower tobacco addiction and/or better compliance to long-term treatment. At the opposite, patients coming from psychiatric institutions were significantly younger and present severe COPD. Smoking cessation in those institutions should be encouraged to prevent severe COPD development.

• Bronchodilators and corticosteroids intake is more important in severe and old patients and decreases hospitalization length. High use of short acting bronchodilators in severe patients suggests non-adherence to GOLD guidelines and/or poor compliance to long-term treatment.

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