80. COPD exacerbation

P555

Relationships between elevated cardiac troponin levels in COPD exacerbations and subsequent cardiac investigation and management

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Background: Admission cardiac troponins (cTn) are elevated in 18-27% patients with COPD exacerbations (BMC Pulm Med 2009;9:35). Clinicians often attribute this rise to co-existing inflammation, anaemia or renal impairment. However, elevated cTn is associated with a significantly increased 30-day post-admission mortality independently of these factors, and its presence indicates underlying myocardial injury. We determined proportions of patients undergoing cardiac investigation and receiving cardioprotective treatment following an exacerbation-related cardiac troponin I (cTnI) rise.
Methods: 237 COPD patients (127 male, 73±11yrs) admitted with exacerbations between July 2008-9, and with a measured cTnI within 24h of admission were retrospectively identified. Clinical information was retrieved using the electronic patient record.
Results: Admission cTnI was "undetectable" (U, <0.02μg/L) in 15%, "measurable" (M, 0.02-0.05μg/L) in 59% and "elevated" (E, >0.05μg/L) in 26% of patients.

	U	M	E	*P*
Investigations within 3 months of admission				
Echocardiography	11%	18%	30%	0.074
Cardiac Catheterisation	0%	1%	7%	0.019
Discharge medication (n=205)				
Aspirin	40%	40%	42%	0.943
ß-blocker	7%	5%	10%	0.660
Statin	33%	42%	40%	0.442
ACE inhibitor	27%	26%	24%	0.961

Conclusions: cTnI elevation is not specific for coronary thrombosis, and rises in exacerbations may reflect demand ischaemia, direct cardiac damage, or myocardial strain. No guidelines exist regarding the optimal management of such patients. However, given their increased risk of early mortality, further cardiac investigation to reveal underlying mechanisms of cTnI release may enable appropriate therapeutic targeting and improve outcomes.

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Comparison of multidimensional assessment systems with regard to risk prediction for exacerbations of COPD

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Aim: Acute Exacerbations of COPD (AECOPD) are major concerns with regard to morbidity, mortality and economic burden. In this study, we compared the efficacy of 3 assessment systems for predicting AECOPD: BODE index (Body mass index, airway Obstruction, Dyspnea, Exercise capacity); DOSE index (Dyspnea, airway Obstruction, Smoking status, Exacerbations); and ADO index (Age, Dyspea, airway Obstruction).
Participants and methods: The frequency of exacerbations (FE) for a 1-year period was retrospectively studied for 183 consecutive patients with COPD. Following parameters were used to compare the results: pulmonary function tests, 6-minute walking test, MMRC dyspnea scale, low-attenuation area (LAA%) on HRCT and FE.
Results: The study included 183 patients (M/F 170/13). The mean age and FEV_1%predicted were 71.4 years and 55.7%, respectively. The mean annual exacerbation rate was 0.57 per patient-year. FE was significantly correlated with the following parameters: lower FEV_1%predicted ($p<0.001$), lower% DLco/VA ($p=0.021$), shorter 6MWD ($p=0.016$), higher MMRC ($p=0.001$), higher DOSE index ($p<0.001$), higher BODE index ($p=0.001$), higher ADO index ($p=0.001$), and larger LAA% ($p=0.002$). FE was significantly associated with prescribed long-term oxygen therapy (Odds ratio [OR] 4.17, $p < 0.001$) and exacerbation rate for the previous year (OR 2.79, $p < 0.001$). The area under the receiver-operator curve for predicting exacerbation during the 1-year follow-up was 0.65 for the BODE index, 0.64 for the ADO index, and 0.75 for the DOSE index.
Conclusions: The DOSE index appears to be superior to the BODE and ADO indices interms of predicting exacerbations of COPD.

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Relation of red blood cell distribution width with long-term survival in acute exacerbation of chronic obstructive pulmonary disease

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Background: Cardiovascular risk factors and cardiac comorbidities are frequent in COPD patients. Red blood cell distribution width (RDW), an automated measure of red blood cell size heterogeneity (eg, anisocytosis) that is largely overlooked, is a newly recognized risk marker in patients with established cardiovascular disease (CVD). RDW may reflect nutritional deficiencies, bone marrow dysfunction, or systemic inflammation. To study the long-term prognostic value of red blood cell distribution width (RDW) in patients hospitalized with acute exacerbation of chronic obstructive pulmonary disease and to compare the value of this measurement with haemoglobin levels and anaemia status.
Methods: During a 4-year period, we studied 149 consecutive patients (aged 61 years, 128 male) hospitalized with COPD. Demographic, clinical, echocardiographical, and laboratory characteristics were registered at discharge and patients were closely followed-up for 40 months (25–49).
Results: Median RDW was 14.6% (13.5– 16.5) and was higher among decedents ($P <0.001$). RDW levels above the median were associated with a significantly lower survival rate on long-term follow-up. These levels were predictive of death in anaemic patients and especially in non-anaemic patients even after adjustment in the multivariable model.
Conclusion: In the acute exacerbation of COPD higher RDW levels at discharge were associated with a worse long-term outcome, regardless of haemoglobin levels and anaemia status.

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Mathematical arterialisation for monitoring during exacerbation

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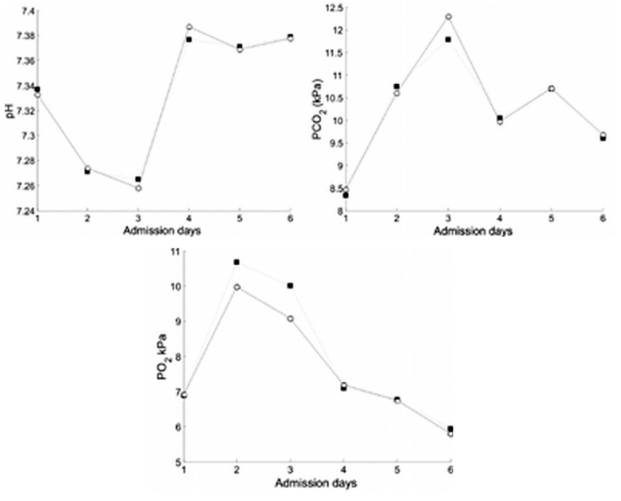
Repeated arterial puncture for acid-base and oxygenation status is painful, but quite common in COPD patients admitted for periods of exacerbation. Recently, a method has been presented (Rees, S.E. et. al. Comput. Methods Programs Biomed. 2006;81:18-25) for mathematically transforming values in peripheral venous blood to arterial, potentially eliminating the need for painful arterial puncture. This method has been evaluated at a single time point in COPD patients (Rees, S.E. et. al. Eur J Appl Physiol. 2010;108:483-94).
The aim of this study was to evaluate the method in patients during the whole period of admission to the hospital for exacerbation.
Twenty patients were studied over an admission of on average 5 days, with an average of 3 arterial blood samples taken during this period. For each arterial sample a paired peripheral venous sample was taken and used to calculate arterial values.
Values of pH and arterial PCO_2 calculated by the method compared well with those measured with a mean and standard deviation of the difference (measured minus calculated) of 0.000±0.010 pH and -0.03±0.26 kPa PCO_2. Figure 1 illustrates the ability of the calculated values (squares, dashed) of arterial pH, PCO_2 and PO_2 to mirror measured clinical changes (open circles, solid) in a single patient studied on six consecutive days.



Conclusions: The method may be a useful tool to evaluate COPD patients during admission without the need for repeated arterial punctures.

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Do exacerbation outcomes in the POET-COPD™ trial differ between regions?

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Background: Exacerbation outcomes in chronic obstructive pulmonary disease (COPD) trials may vary between geographical regions due to differences in aspects such as health systems, local treatment paradigms or climate. The randomized, double-blind, double-dummy, 1-year POET-COPD™ trial (n=7376) showed fewer moderate or severe exacerbations in the tiotropium (18 μg qd) versus salmeterol (50 μg bid) group.
Aims and objectives: A post-hoc analysis to examine if geographical region influenced exacerbation outcomes.
Methods: Important inclusion criteria were age ≥40 years, postbronchodilator forced expiratory volume in 1 s (FEV_1) ≤70% predicted and ≥1 exacerbation in prior year. Countries (n=25) were grouped into four regions: Eastern Europe, Western Europe, Nordic and Mediterranean. Interaction analyses were performed for time to first exacerbation (primary endpoint) and annual exacerbation rate.
Results: 7376 patients were randomized and treated. Results are shown in the table.

Region	N Tiotropium / salmeterol	Tiotropium vs salmeterol	
		Time to first exacerbation Hazard ratio [HR] (95% CI)*	Number of exacerbations Rate ratio [RR] (95% CI)†
Eastern Europe	2449 / 2412	0.87 (0.70–0.95)	0.88 (0.80–0.96)
Western Europe	925 / 926	0.83 (0.72–0.97)	0.90 (0.79–1.03)
Nordic	70 / 75	0.81 (0.51–1.29)	0.97 (0.67–1.41)
Mediterranean	263 / 256	0.81 (0.62–1.04)	0.91 (0.74–1.13)

*Cox regression (interaction p-value: 0.92); †Poisson regression correcting for overdispersion (interaction *P*-value: 0.95).

Conclusion: Post-hoc subgroup analysis of the POET-COPD™ trial by geographical region suggests that the exacerbation benefits of tiotropium over salmeterol are independent of region.
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Effect of acute exacerbations on circulating thrombotic and fibrinolytic markers in COPD patients

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Introduction: Patients with COPD are prone to clinical exacerbations which are associated with increased airway inflammation, a potent pro-thrombotic stimulus.
Aim: To investigate whether activation of the endothelial-coagulative system occurs in association with COPD exacerbation.
Methods: Surrogate markers of inflammation were collected: interleukin-6 (IL-6); endothelium damage: von Willebrand's factor (vWF); clotting activation: D-dimer (D-D), and prothrombin fragment 1+2 (F1+2); fibrinolytic response: plasminogen activator inhibitor 1 (PAI-1), in COPD subjects during exacerbation.
Results: In 30 COPD subjects, IL-6, vWF, D-D and F1+2 levels were elevated during exacerbation and decreased significantly at clinical stability (IL-6, p=0.005; vWF, p<0.001; D-D, p<0.001; F1+2, p<0.001). PAI-1 levels did not change at exacerbation compared to clinically stable situations.

Changes in circulating endothelial, clotting and fibrinolytic markers in COPD patients

	At Acute Exacerbation (Visit 1)	At Clinical Stability (Visit 2)	% Median Change	P value
IL-6 (pg/mL)	4.95 (2.98, 9.75)	3.2 (2.38, 4.78)	–35.4%	0.005
vWF (pg/mL)	169.6 (121.6, 231.4)	122 (91.1, 160.2)	–28.1%	<0.001
D-D (ng/mL)	157.5 (141.75, 233)	127 (111.25, 151.5)	–19.4%	<0.001
F1+2 (nmol/L)	1.19 (0.95, 1.66)	0.73 (0.53, 0.91)	–38.7%	<0.001
PAI-1 (ng/mL)	11.35 (9.38, 14.28)	10.7 (8.48, 13.35)	–5.7%	0.765

All values are medians (IQR).

Conclusions: COPD exacerbations are associated with endothelial activation and clotting initiation. This was not associated with a change in PAI-1, implying a defect in the fibrinolytic response to inflammation. The pro-thrombotic nature of COPD exacerbations appears to be mitigated by excessive fibrinolysis

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Predictors of mortality after hospitalisation for acute exacerbation of chronic obstructive pulmonary disease

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Introduction: In this study we wanted to identify predictors of mortality among patients hospitalised for acute exacerbation of chronic obstructive pulmonary disease (AECOPD).
Materials and methods: 596 patients hospitalised for AECOPD were retrospectively studied after discharge from Oslo University Hospital, Aker between 2006 and 2008 with median follow-up time 30 months (range 0 to 56)). The patients' characteristics and potential predictors of death at the index admission were abstracted from medical records. Hazard ratios for death were estimated using multivariate Cox regression among those with valid spirometry.
Results: Mean age was 73 years (SD 11), 54% were women. In total 112 patients received non-invasive ventilation (NIV) during the index admission. Mean forced expiratory volume in one second (FEV_1) was 43% of predicted (SD 17), mean body mass index (BMI) was 24 kg/m^2 (SD 6). In total, 303 patients (51%) died. Hazard ratios for death of each predictor are listed in [Table 1].

Table 1. Predictors of mortality following hospitalisation for AECOPD (N=426)

	Hazard ratio	95,0% CI		P-value
		Upper	Lower	
Age, increase of 1 year	1,06	1,04	1,08	<0,001
Sex, female vs. male	0,74	0,55	1,00	0,048
No comorbidity (referent)				
1 of 12 comorbidities	1.16	0.77	1.75	0.484
2 of 12 comorbidities	1.27	0.81	1.98	0.301
≥3 of 12 comorbidities	1,80	1,15	2,82	0,01
NIV	1,73	1,19	2,52	0,004
FEV1(% pred), increase of 10%	0,88	0,79	0,97	0,014
BMI, increase of 1 kg/m^2	0,95	0,92	0,98	0,003

Conclusion: High age, male sex, more than two comorbidities, need for non-invasive ventilation, low FEV_1 and low BMI were associated with increased mortality after hospitalisation for AECOPD.

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Development of an automated questionnaire for the early detection of COPD exacerbations (AQCE)

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Background and aim: This work's goal is developing a COPD exacerbation symptoms and prodromes-based questionnaire for the early detection of exacerbations at home by a device for telemonitoring.
Methods: AQCE was linguistically and medically checked for inconsistencies, resulting in 15 items: general health status (1), cough (1), phlegm (2), dyspnea (3), sleep conditions (2), cold-like symptoms (4), lung sounds (1) and coordination test (1). A group of 52 stable patients reported having had at least one severe exacerbation event was selected. Questionnaire understanding degree was determined by two experts by semi-structured interviews and 5-point Likert scale questions. Reliability was conducted by test-retest over spirometry, clinical evaluation, the AQCE and the validated questionnaire Clinical COPD Questionnaire (CCQ) in a range of 15-30 days. Concordance was established by using the intraclass correlation coefficient (ICC), stability by the Wilcoxon signed-rank test and reliability by Cronbach's alpha.
Results: Items showed a high degree of comprehension for 97.1% of sample. Comprehension concordance between patients and expert 1 was 0.71 and between patients and expert 2 0.53. Mean FEV1 in the first session was 42.63% (SD 16.69) and in the second one 41.18% (SD 17.5). CCQ did not vary significantly in test-retest. Total score for AQCE and each item independently was confirmed to return similar values and these results did not show statistically significant differences in test-retests. Internal consistency was 0.7.
Conclusions: AQCE is comprehensible, reliable, stable and consistent for COPD patients.
AMICA project AAL Joint Programme AAL-2008-1-176

P563

Procalcitonin use in acute exacerbations of COPD

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Background: Acute exacerbations of chronic obstructive pulmonary disease (AECOPD) contribute to a rising number of hospital admissions in United Kingdom [1]. This study investigates the role of procalcitonin (PCT) essay in antibiotic prescribing in AECOPD.
Methods: A prospective study of 30 patients admitted with acute exacerbation of COPD in Winter 2010. All patients were assessed with routine Xray,bloods, CRP and Procalcitonin essay. Decisions to treat with antibiotics were made using clinical impression and a standard PCT protocol [2]. Antibiotic use was discouraged if initial PCT level <0.25 mcg or 80-90% fall of peak PCT value after 72 hours. Primary outcomes measured in antibiotic use, length of stay, readmission rate.
Results: From 30 cases in our study 7/30 (23%) had antibiotics stopped on admission with PCT <0.25 mcg. 3/30 (10%) had antibiotics stopped after 72 h PCT level fall. 13/30 (44%) had antibiotics irrespective PCT value and 7/30 (23%) did not need antibiotics clinically disregarding PCT use. Length of stay using PCT was 20% shorter vs no PCT use. No significant difference in re-admission rates (1/10 in PCT vs 2/20 no PCT use).The economical savings (stay,antibiotics) using PCT was 900 £ p/P.
Discussion: Procalcitonin significantly reduced the use of antibiotics in acute exacerbation of COPD. This means reduction in stay, antibiotic side effects,savings without increased rate in readmissions.Our data suggests the use of the PCT essay may improve clinical care in exacerbations of COPD.Further studies on a larger number of patients are needed.
References:

[1] Hospital admission rates AECOPD 2004-2008 National Library for Health, UK.
[2] Schuetz et al. Procalcitonin guided antibiotic therapy (...) *BMC HS Research* 2007.

P564

Characteristics of patients with chronic obstructive pulmonary disease (COPD) discharged from the emergency department – Improving the care pathway for acute exacerbations of COPD

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Introduction: This study characterized COPD-patients attending an Emergency Department (ED) who are discharged.
Methods: Retrospective records-review of COPD-patients discharged from ED (04/2009-03/2010) included demographics, symptoms, spirometry, treatment (pre-ED and discharge), ED attendances/hospital admissions & deaths in the subsequent 90 days.
Results: 49/53 episodes coded COPD-ED-discharges in 45 patients were compatible with AECOPD (11% of total 387 AECOPD presentations). 30/49 presented outside 9-5, Monday–Friday. Obstructive spirometry was recorded for 28/45: mean (SD) FEV_1 1.21 (0.55)litres. Patients on GP-COPD registers included 2 with restrictive spirometry; 2 had no spirometry; 11 a new COPD diagnosis. Symptoms were increased breathlessness (42/47), cough (38/48) & changing sputum (15/48). Mean (range) symptom duration was 4 (0-28)days (n=40), but <1 day in 21/40. 8/46 started corticosteroids and 10/46 antibiotics before attending ED. At discharge, 34/49 received/continued corticosteroids; 16/49 antibiotics. 2 patients died. 15/49 episodes resulted in hospital admission within 90 days, 6/15 within 2 weeks.
Conclusions: Patients discharged from ED with AECOPD account for 11% of COPD hospital presentations (<1/week). >50% presented within 24h of symptoms, 60% outside working-hours. In >20%, diagnosis was not confirmed by spirometry. Only 20% started exacerbation treatment before attending; 30% not given corticosteroids on discharge. Readmission rates were high despite moderately severe COPD. Optimal management of ED-COPD discharges should include corticosteroids, followed by GP-review within 7 days.

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Impact of pneumonia on mortality and length of stay in patients hospitalized with acute COPD exacerbations

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Background and aims: Community acquired pneumonia (CAP) is common among patients hospitalized with acute exacerbations of chronic obstructive pulmonary disease (COPD).
The aims were to study the impact of (CAP) on the length of hospital stay (LOS), the in-hospital mortality, and the use of non-invasive ventilation (NIV) regardless of COPD severity in patients hospitalized because of COPD exacerbations.
Methods: Retrospectively all COPD hospitalizations in the Departments of Internal and Respiratory Medicine in one Swedish and two Norwegian hospitals were registered. A total of 1144 admissions (731 patients) were identified from patient administrative systems. CAP was defined as pneumonic infiltrates on x-ray and CRP values over or equal to 40 mg/L, and 237 admissions followed these criteria. Non-CAP was defined as no pneumonic infiltrates on x-ray and CRP lower than 40.
Results: Patients with CAP had higher usage of NIV (18.1% versus 12.5%, p=0.04) and increased LOS (median 9 days versus 5 days, p<0.001). A higher percentage of those with mild to moderate COPD had CAP compared to those with severe disease (40.0% versus 27.6%, p=0.007). The mortality was not increased in the CAP group.
Conclusions: In conclusion, the in-hospital mortality was not increased among COPD patients with CAP compared to the non-CAP group. This may in part be explained by the more frequent treatment with antibiotics and NIV among the COPD patients with CAP and partly because a higher proportion of those with CAP had mild to moderate COPD compared to the non-CAP group.

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Infectional factors influences on cytomorphological picture of bronchial biopsies at COPD exacerbation

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Purpose: To match and analyze bronchial biopsies in dependence on infectional factor at COPD exacerbation.
Material: 46 COPD patients were examined, infectional nature of exacerbation was confirmed at 30 patients. In common group patients intraepithelial lymphocytes count in brush-biopsy was 29.5±3.4/mm^2, intraepithelial eosinophiles–2.3±0.7/mm^2, intraepithelial neutrophiles–0.0/mm^2, stromal neutrophiles 5.4±1.4/mm^2, stromal eosinophiles 9.6±2.6/mm^2, squamous cell methaplasia expressiveness–0.5±0.3/point, reserved cell hyperplasia 0.6±0.2/point, goblet cell hyperplasia–0.3±0.1/point.
Endobronchail biopsies and morphometrical estimation of biopsy were made.
Intraepithelial lymphocytes count–28.2±4.6/mm^2 and 31.2±5.3/ mm^2, intraepithelial eosinophiles count–2.4±0.7/mm^2 and 2.2±0.6/mm^2, stromal neutrophiles count–5.2±0.8/mm^2 and 5.6±0.9/mm^2 were the same in dependent on exacerbation etiology and the same expressiveness of goblet cell hyperplasia.
At noninfectional COPD exacerbation stromal eosinophiles cell count was 12.3±1.5/mm^2 vs 7.6±1.5/mm^2 (p<0.05) at infectional COPD exacerbation, although at second group the expressiveness of reserve cell hyperplasia was high than at first group–0.8±0.2/point and 0.4±0.1/point accordingly (p<0.05), and the expressiveness of squamous cell methaplasia was the same–0.7±0.2/point and 0.3±0.1/point (p<0.05) accordingly.Etiology of COPD exacerbation influences on pathomorphological process in bronchial mucosa. This results in more expressiveness of squamous cell methaplasia and reserve cell hyperplasia in presence of infectional factor at COPD exacerbation patients.

P567

Cognitive decline in stable and exacerbating COPD vs. controls

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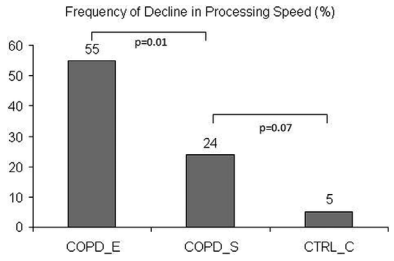
Background: Poor cognitive function does not mean that decline has occurred. This is the first study in COPD to test for the presence of cognitive decline using formal neuropsychological assessment.
Methods: Neuropsychological tests were performed in stable COPD patients (COPD_S n=50), patients hospitalised with an acute exacerbation (COPD_E n=20) and controls (CTRL_S n=20). Pre-morbid cognition was estimated from adult reading ability, which is resistant to cognitive decline. Performances significantly below predicted ability (p<0.05) are judged to have declined.
Results: The two COPD groups were similar in age, gender and pack yrs, but COPD_E had lower FEV_{1pp} and PaO_2. Frequency of decline in working memory was not significantly different between the three groups (Table 1). More exacer-

Table 1

	COPD_E	COPD_S	CTRL_C	p value
Age	71±11	69±8	64±9	NS
Gender	11F	27F	11F	NS
Pack Yrs	61±40	57±24	7±12	0.001
$FEV_{\%pred}$	40±15	52±22		0.03
PaO_2	8.8±1.6	10.2±1.8		0.05
$PaCO_2$	5.5±0.9	5.03±0.5		NS
Decline in Processing Speed	55%	24%	5%	E<S=C*
Decline in Working Memory	10%	20%	25%	NS

*Group difference (χ^2) p<0.05; between groups: p>0.05 (=); p≤0.05 (≤).



bating patients showed decline in processing speed than stable patients or controls (p=0.01) (figure).
Conclusion: Over half of patients prior to discharge with exacerbation and a quarter of stable patients with COPD exhibited significant cognitive decline in processing speed. It is unclear if the decline was acute, chronic or reversible.

P568
Post discharge mortality in North Indian patients with exacerbation of COPD
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Background: Mortality rates at 2 years following discharge among patients with exacerbation of COPD have ranged from 22% to 49%. No mortality data is available for such patients from India, especially Kashmir, where COPD is common.
Objective: To determine the post discharge mortality rate and its determinants among patients with COPD hospitalized for acute exacerbation, in a 650-bedded tertiary care facility in Srinagar, Kashmir (India).
Methods: One hundred and fifty-one patients admitted with a diagnosis of acute exacerbation of COPD from October 2008 to October 2010 & discharged after treatment were followed prospectively for a period of 2 years for any deaths and recurrences of exacerbations. The relationship of mortality with potential patient factors was analysed statistically by employing multiple logistic regression analysis, Kaplan- Meier survival analysis and Cox regression.
Results: During a followup of two years following discharge, 39.7% patients died with the majority (34.4%) of deaths occurring during the first year. Risk factors associated with increased mortality included lower health status at discharge (SGRQ score $>$ 60, p value $<$ 0.001), GOLD stage 4 ($p < 0.001$), BMI $<$ 18 kgs/m^2 (p value $<$ 0.001), $SaO_2 \leq 90\%$ at discharge ($p < 0.001$) and 6MWT distance of $<$ 150 metres ($p < 0.001$). Frequency of exacerbations increased with increasing GOLD stage ($p < 0.001$).
Conclusion: Mortality after discharge is high among north Indian patients admitted with acute exacerbation. Poor functional status at discharge and advanced lung disease are predictive of excessive mortality. Advanced stage of lung disease is associated with frequent exacerbations.

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CURB-65 and mortality in pneumonic and non-pneumonic exacerbations of COPD
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Background: Acute exacerbations of chronic obstructive pulmonary disease (AECOPD) requiring hospitalisation are often complicated by consolidation. In patients with pneumonia and AECOPD (pAECOPD) the CURB-65 prediction tool is widely used yet its utility in this population is uncertain.
Objective: To assess the effect of pneumonia on outcome, and the utility of CURB-65, in AECOPD.
Method: Patients hospitalised with AECOPD were recruited prospectively, with clinical data and CURB-65 collected on admission. Pneumonia was defined as the presence of new consolidation visible radiographically.
Results: Of 920 patients recruited, 299 (32.5%) had complicating pneumonia. Patients with pAECOPD were significantly older (mean age 75.7 v. 71.8 years); more often male (50.8% v. 43.8%); and had slightly better preserved ventilatory function (FEV_1 45.5 v. 42.9% predicted).
In-hospital mortality was higher in pAECOPD than npAECOPD (20.1% versus 6%; p<0.001) and mortality for each CURB-65 group is shown in table 1:

Mortality for CURB-65 groups

CURB-65 score	Predicted mortality in CAP, %*	pAECOPD		npAECOPD	
		n	In-hospital mortality, %	n	In-hospital mortality, %
0–1	1.5	91	12.1	322	2.2
2	9.2	100	15	197	6.6
3–5	22.4	108	31.5	102	16.7

*From Lim et al.

Area under the ROC curve for CURB-65 against in-hospital mortality was 0.66 (95% CI 0.58–0.74) for pAECOPD and 0.72 (95% CI 0.63–0.81) for npAECOPD.
Conclusion: In pAECOPD, risk of death is significantly greater than npAECOPD, and is higher than predicted by CURB-65. CURB-65 is a less good predictor of in-hospital mortality in pAECOPD than previously reported in CAP, and other prediction tools may be required for this population.

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Anemia in COPD patients with an exacerbation
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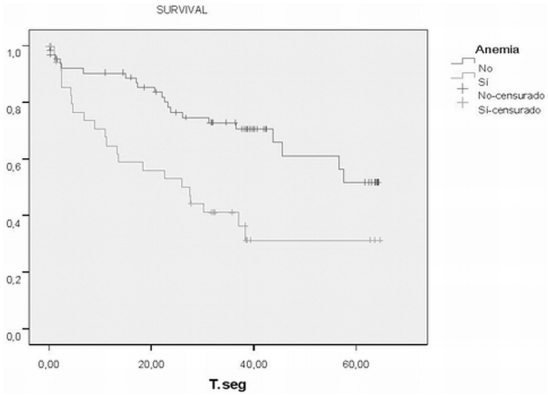
COPD typically shows poliglobulia secondary to hypoxemia. But, the opposite situation is also observed.
Aims: Quantify and classify the anemia in COPD patients with an exacerbation, describe clinical characteristics, factors which determine the anemia and the influence of the anemia in survival.
Methods: Observational prospective study of COPD patientes with exacerbation. Demographic and anthropometric information as well as co morbidities and lung functional test is recorded. We measured survival after discharge and mortality risk factors.
Results: 106 were included (93 men). Average age was 71±9, BMI 25.7±5.6 kg/m^2, FEV1 39±13%. 88.9% used to smoke or were smoking at present. Anemia prevalence was 37.7%. dyslipidemia (73.6%), high blood pressure (59.4%), heart failure (59.4%) and pulmonary hypertension (44.3%). Average Charlson index was 5.9±1.4 (87.9% ≥ 5), and the META index measured by bioelectric impediancciometry was 22.3±7.8. 48.1% were taking more than 5 treatments. In logistic regression test factors that determined anemia were age, iron and creatinin levels ($p<0.05$) and the META index ($p<0.01$). Survival in patients with anemia was 39±4 months compared to 53±3 months in patients without anemia ($p<0.001$).



Mortality risk factors were FEV1, BMI and creatinin levels.
Conclusion: Anemia is frequent in COPD patients with exacerbation. Survival is clearly influenced by anemia. Age, iron levels, creatinin levels and META index influence the most.

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Our experience of procalcitonin assay in identifying bacterial COPD exacerbations
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Background: Procalcitonin (PCT) is a pre-hormone which is raised in bacterial infection.
Aim of study: To evaluate the benefit of measuring PCT level in recognising bacterial from non bacterial COPD exacerbations.
Method: We prospectively evaluated 24 COPD patients who were admitted with an exacerbation. They had PCT, C-reactive protein (CRP), white blood cell (WBC) measurements and a chest radiograph (CXR). Use of antibiotics were recorded.
Results: 6 patients had CXR findings of consolidation and 5 of them had high PCT indicating bacterial infection. 1 patient had a moderately elevated PCT which could be due to early sampling.
In 18 patients who had normal CXR findings, 3 had positive PCT and of these, 1 had high CRP and WBC indicating true bacterial infection. 1 had high CRP with normal WBC which could be due to atypical bacterial infection. 1 had normal CRP with high WBC which could be due to spuriously low CRP result.
In 15 patients who had negative PCT, 7 had normal CRP and WBC indicating no bacterial infection. 2 of them had normal CRP but slightly raised WBC and we feel the raised WBC were due to preceding steroid treatment. 3 of them had raised CRP and normal WBC and 3 had both raised CRP and WBC. These may be due to bacterial infection, and the negative PCT represented early sampling. All patients had antibiotics on admission.

Conclusion: Many patients with COPD exacerbation are treated with antibiotics without bacterial infection. High PCT level indicates bacterial infection in these patients. The converse is also true but this should be used in conjunction with CRP and WBC levels. When normal PCT level is associated with either raised CRP or WBC, a second late PCT level should be measured.

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Profile of patients hospitalized with COPD acute exacerbation in respiratory department in Tunisia

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In developing countries, Respiratory departments are facing new challenges with the huge increase in the number of patients hospitalized with COPD acute exacerbations with limits in ICU beds availability and delay in the management. The aim of this study is to outline the profile of patients with COPD exacerbation hospitalized in a respiratory department in Tunisia.

Methods: One hundred and one files of male patients, randomly selected among whom hospitalized in a Respiratory male department in Tunis (Tunisia) during the last 20 years for acute COPD exacerbation, are analyzed.

Results: The patients, aged 65 years-old [IC95%: 63-67], are heavy smokers with cigarette consumption of 57 PxA [IC95%: 51-64] and 50% have comobidities and 15% have a history of myocardial ischemia. Two periods of increased hospitalization are observed: December-January and March-April.

Acute respiratory failure with a PaO2<60mmHg is observed in 90% of these patients and Hypercarbia in 15%. Pneumonia is diagnosed in 30% of these patients and bacteria is revealed in 12% mainly Haemophilus Influenzae (9%). Oxygenotherapy is required in 75% of patients and Non Invasive Ventilation (NIV) in 25%, used during the last 5 years. Two patients died during hospitalization and the duration of hospital stay is 17 days [IC95%: 14-19].

Conclusion: High prevalence of acute respiratory failure and Hypercarbia is observed in patients hospitalized with COPD acute exacerbations in respiratory departments in Tunisia with a long duration of hospital stay.

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Anemia in COPD patients in Spain: A systematic review

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Objective: To determine the prevalence of anemia in COPD patients in Spain and the consequences of it.

Material and methods: We have conducted an electronic search in PubMed and Embase, a hand-made search of the main Spanish journals of COPD (Archivos de Bronconeumología, Revista Clínica Española and Medicina Clínica) and its references and a hand-made search from 2005 to 2010 of proceedings of annual congresses of European Respiratory Society, Spanish Society of Respiratory Pathology (SEPAR) and Spanish Society of Internal Medicine.

Results: We have obtained 11 studies, 2 journal papers and 9 congress abstracts. 7 studies were conducted in Internal Medicine departments, 3 in Pneumology departments and one in both. All studies used spirometric criteria for COPD diagnose. Six studies defined anemia with WHO criteria and there was significant heterogeneity in exclusion criteria. The studies included 1669 patients, with a mean age of 74.4 years and 537 (32.2%) had anemia. Patients of Internal medicine departments were older (75.8 vs 70.7 years) There was no difference in prevalence by study department (Pneumology 30.2%, Internal Medicine 32.8%; p=0.32) but prevalence was lower with different of WHO diagnose criteria (24.5% vs 34.9%, p=0.001). Anemia was not associated with readmission or mortality after three months in one study but there was association with readmission in the next year in one study and with one year-mortality in two studies. In one study anemia was associated with mortality during a median follow up of 531 days.

Conclusion: A third of Spanish patients with COPD had anemia. Anemia is associated with more long-term readmissions and mortality.

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Interleukin-6, but not pentraxin 3, predicts adverse clinical outcomes on short-term prognosis of patients with incipient heart failure

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We investigated the clinical significance of plasma interleukin (IL)-6, IL-1, IL-1 decoy receptor and pentraxin 3 (PTX3) levels in chronic heart failure (CHF) patients with or without chronic obstructive pulmonary disease (COPD). Plasma levels of these inflammatory markers were measured by using a sandwich enzyme-linked immunosorbent assay in 118 patients. Subjects were ≥65 years, ≥10 pack-years, with a new diagnosis of CHF. The prevalence of COPD was 30% (36/118). Only 2/118 patients had previously diagnosed COPD. The percent of patients given β-blockers (80% vs 89%, P = 0.1), and the optimized to CHF target dose of β-blockers (46.3% vs 59.7%, P = 0.1) were no different in patients with or without COPD. Subjects were prospectively followed for 357 (336-364) days with the end point of death or all-cause hospitalization (adverse event). Baseline plasma levels of IL-6, IL-1, IL-1 decoy receptor and PTX3 were comparable between CHF patients with and without COPD. None of the inflammatory markers correlated with CHF severity. Death or hospitalization occurred in 70 (59.3%) patients. High IL-6 levels was a significant independent predictor for adverse event (WALD CHI-SQUARE P=0.0083), whereas IL-1, IL-1 decoy receptor and PTX3 were not. IL-6 levels correlated positively with high-sensitive C-reactive protein (hs-CRP) levels ($r = 0.67$, $p < 0.0001$), although hs-CRP was not associated with death or hospitalization.

These results suggest that plasma levels of IL-6 might serve as a prognostic markers in short-term prognosis of elderly CHF patients either with or without COPD.