

P131 MYOCARDIAL INJURY AND DYSFUNCTION DURING COPD EXACERBATIONS

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Introduction Cardiac biomarkers of myocardial injury and dysfunction are commonly raised in patients hospitalised with COPD exacerbations and are independent predictors of mortality. The relevance of this to the majority of community-treated events has not previously been studied.

Methods We prospectively measured serum troponin T and N-terminal brain pro-natriuretic peptide (NT-proBNP) in 55 patients from the London COPD Cohort in the stable state, at exacerbation onset and thereafter at days 3 (n = 44), 7 (n = 39), 14 (n = 38), and 35 (n = 25) during recovery. Exacerbation assessments were undertaken within one week of symptom onset, prior to therapy, and defined by two consecutive days of new or increased respiratory symptoms on prospectively-completed daily patient diary cards requiring at least one major (dyspnoea, sputum purulence, sputum volume) and another major or minor symptom (coryza, wheeze, sore throat and cough).

Results Cardiac biomarkers rose from the stable state to exacerbation (mean (± SD) troponin T 0.012 (± 0.011) vs 0.017 (± 0.016) g/L, p < 0.001; NT-proBNP 23.1 (± 39.2) vs 36.0 (± 56.5) pg/ml, p < 0.001). These increases were significantly higher in those with known IHD (n = 12) compared to those without IHD (n = 43) (mean (± SD) increase in troponin T 0.011 (± 0.009) vs 0.003 (± 0.006) g/L, p = 0.003; NT-proBNP 38.1 (± 37.7) vs 5.9 (± 12.3) pg/ml, p < 0.001).

Cardiac biomarkers did not fall during the initial five-week exacerbation recovery period (troponin T -0.0003 g/L/day (95% CI -0.0008 to 0.0004), p = 0.431; NT-proBNP -0.096 pg/ml/

day (95% CI -0.631 to 0.438), p = 0.723). They remained more elevated in those with IHD (n = 12) than in those without IHD (n = 43) during the five week recovery period (troponin T AUC 0.368 ± 0.311 g/L/35days vs 0.088 ± 0.174 g/L/35days, p < 0.001; NT-proBNP AUC 1590 ± 2620 pg/ml/35days vs 279 ± 725 pg/ml/35days, p = 0.005).

Longer exacerbations were associated with greater myocardial injury at exacerbation (higher serum troponin T) and the magnitude of change from the stable state (rho = 0.323, p = 0.027; rho = 0.390, p = 0.007 respectively).

Conclusions Myocardial injury and dysfunction is common and clinically significant during COPD exacerbations in those with underlying IHD and relates to exacerbation length. Alternative approaches to mitigate cardiovascular complications, in stable COPD and at exacerbation, require further study.

P132 LACK OF CHANGE IN OUTCOMES ACCOMPANYING SIGNIFICANT IMPROVEMENT IN CLINICAL PARAMETERS OF CARE OF PATIENTS ADMITTED WITH COMMUNITY ACQUIRED PNEUMONIA

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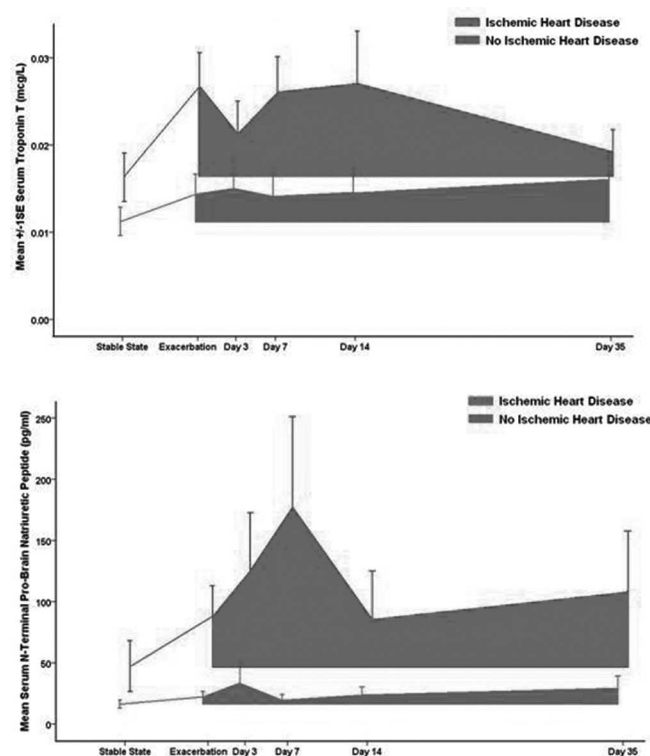
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Background Significant improvements in quality of inpatient care would be expected to improve objective outcomes, such as length of stay (LOS) and mortality. The management of community acquired pneumonia was reviewed on both sites of this Trust over a 33 month period during which time training and feedback was provided on management, monitoring 5 aspects of clinical care:- documentation of oxygenation; documentation of CURB65 scores; blood cultures (if obtained) taken before antibiotics; antibiotics given in accordance with Trust guidelines; antibiotics given within 6 hrs.

Methods 4922 patients discharged between July 2010 and March 2013 had been coded as being admitted with pneumonia. The notes of 52 patients were unobtainable. Patients were excluded where there was no evidence of pneumonia on admission CXR, where the admitting clinicians had not diagnosed pneumonia or when the pneumonia was not considered to be community acquired. A monthly 'composite quality score' (CQS) score was derived by averaging the percentage of the 5 parameters that were achieved for each patient/admission.

Results 2842 (58%) patients remained for analysis. Significant improvements were noted in all the parameters being monitored with quarterly CQS scores rising from 68% to 93% and, more specifically, quarterly scores for antibiotic delivery within 6 hrs increasing from 40% to 78%. Despite this no improvement at all was seen in LOS (quarterly LOS range: 10.8–13.4 days; no time trend). A gradual fall in mortality occurred, but only at one of the two sites (absolute fall of 2.8% per yr cf. no change). Of note was an unexpected and progressive increase in quarterly admissions (35% per year) at the site with falling mortality, but no change at the other.

Conclusions Demonstrable improvement in parameters of clinical care result from education and feedback. However, a subsequent lack of change in outcomes (LOS, and, at one site, in mortality) despite such clear improvements would be unexpected. There may either be more appropriate clinical parameters on which to focus or these outcomes may have



Abstract P131 Figure 1.

multifactorial influences amongst which improvements in current levels of clinical care may actually have a minor role.

P133 **GUIDELINE ADHERENT THERAPY AND REDUCED MORTALITY AND LENGTH OF STAY IN ADULTS HOSPITALISED WITH EXACERBATIONS OF COPD.**

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Introduction Acute exacerbations of COPD (AECOPD) frequently cause hospitalisation and death in COPD patients. The Global Initiative for Chronic Obstructive Lung Disease (GOLD) issued recent guidelines for the treatment of COPD including that of exacerbations. GOLD guidance included the use of corticosteroids, bronchodilators, controlled oxygen therapy and appropriate use of antibiotics and non-invasive ventilation (NIV). We present an analysis of a prospective cohort of patients hospitalised with AECOPD evaluating whether compliance with GOLD COPD guidelines was associated with improved survival and reduced length of hospital stay (LoS)

Methods A prospective observational cohort study of patients admitted with AECOPD. Patients were >40 years of age, with spirometrically confirmed COPD and admitted to one of 12 UK centres between 2009–2012. We evaluated adherence to guidelines on steroid, antibiotic, bronchodilator, oxygen and NIV use. Patients' care was classified by the number of adherent guideline domains creating 5 groups; i.e. those whose care was compliant with only one guideline to those who care was compliant with all. The primary outcome was 30 day in-hospital mortality, LoS was the secondary outcome. Cox proportional hazards regression was used to calculate adjusted hazard ratios (HR) for analyses of guideline adherence.

Results 1343 patients were included in our study. There were no patients whose treatment was not compliant with any guidelines while the management of 349 individuals was fully complaint. Inpatient mortality was 6.2%. Patients whose care was compliant with one or 2 guidelines were used as the reference group for mortality analysis as only 13 patients had care compliant with a single domain. The HR for patients compliant in 3, 4 and 5 guideline domains were 0.81 (0.41–1.61) $p = 0.4$, 0.58 (0.30–1.13) $p = 0.1$, and 0.40 (0.19–0.87) $p = 0.01$ respectively. Figure 1 shows the relationship between survival and guideline adherence. Concordance with individual guideline domains was not associated with improved mortality. The median LoS decreased from 11 (interquartile range 6 - 15) in those who care had only one compliance to 5 (2- 10) in fully compliant care ($p < 0.0001$). **Conclusion** Management of AECOPD that was fully concordant with GOLD guidelines was associated with significantly improved mortality and shorter hospital stays.

P134 **THE FACTORS ASSOCIATED WITH READMISSION OF PATIENTS WITH EXACERBATION OF CHRONIC OBSTRUCTIVE PULMONARY DISEASE (COPD) WITHIN 30 DAYS ARE LARGELY OUT OF CONTROL OF HEALTHCARE PROFESSIONALS AND THE TRUST—THE DEPARTMENT OF HEALTH'S (DOH) CASE FOR PENALISING TRUSTS FOR 30 DAY READMISSION IS WEAK AND UNJUSTIFIABLE**

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Introduction and Objective Early readmission of patients with COPD is responsible for significant healthcare costs. To minimise this, DoH has proposed financial penalties to Trusts for readmissions within 30 days of discharge¹. Previous studies have questioned this proposal's justification². We conducted this study to examine this issue in our Trust.

Methods List of patients with primary diagnosis of COPD readmitted within 30 days of discharge in 2011 was obtained from clinical coding department and was further scrutinised to identify patients in whom this diagnosis was correct. Available notes were reviewed and data was collected using a locally designed pro-forma.

Results From initial list of 361 episodes, 47 patients were readmitted over 53 episodes of which 25 were truly for exacerbation of COPD. Patient's characteristics are described in Table. Readmission occurred even if patients were on maximum/optimum treatment (96%) and had respiratory input (84%). Only 3 episodes (12%) required ventilator support (invasive/ non-invasive) that could not have been managed outside hospital. The average length of stay was 8.12 days.

Conclusions and Discussion The best medical care during initial admission does not reduce readmission. Factors associated with readmission are largely unmodifiable by medical intervention and beyond control of healthcare professionals and Trusts. Admission avoidance schemes are not available widely; and may be answer to the problem by reducing rate of admission through various supportive and non-medical measures made available in the community. Incentive for lower readmission rates rather than penalty for higher readmission may encourage Trusts to invest in admission avoidance services. The bed cost alone would be £53,592 for 22 avoidable admissions with hospital stay of 8.12 days @£300/day. Non-payment for readmissions would amount to a loss of £87,079 on minimum tariff of £1643/patient. 53% of this would have been for wrongly coded patients; and may be a matter of interest for managers.

REFERENCES

1. "The Operating framework for the NHS in England 2011–12"—by Department of Health - page 52, paragraph–5.33.
2. J Hare *et al.* 30-Day COPD readmissions relate to disease severity and demographic factors rather than simply organisation and delivery of hospital care. *Thorax* 2011;66: Suppl 4 A107-A108.

Abstract P134 Table 1.

Total COPD admission episodes in 2011	Number of patients	Total episodes of readmission	Readmission episodes for COPD Exacerbation	Readmission for non-COPD Diagnosis
361	47 (14.68%)	53	25 out of 53 (47%) (7% of original 361)	28 out of 53 (53%)
Characteristics of readmitted patients				
<ul style="list-style-type: none"> • Age > 70 years (mean 72.3) • Admitted at least once in the previous year (64%) • Living alone (76%) • Associated co-morbidities (72%) 		<ul style="list-style-type: none"> • Stable state hypercapnoea (43%) • Nebuliser dependant (64%) • FEV1 <50 % (65%) • Functional status MRC 3 or above (76%) 		