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Background Chemotherapy agents have dose-related effectiveness. The BTOG2 trial is a large phase III trial supported by the British Thoracic Oncology Group patients addressing this issue in which advanced non-small cell lung cancer were randomised to GC80 vs GC50 vs GCb6. Treatment delays and dose reductions due to toxicity mean that patients do not actually receive planned treatments and the BTOG2 trial provides an opportunity to investigate the delivered dose intensity (DDI) of these treatments in a large group of patients.

Methods Carboplatin dose was calculated using the Calvert equation, incorporating estimated GFR based on the Wright equation including creatinine kinase. Delivered dose intensity (DDI) for each patient was calculated as the mean of the per-cycle DDI which is the ratio of the delivered vs planned dose per day, calculated for platinum and gemcitabine separately.

Results Starting doses for cycle 1 were generally as per protocol. Doses of carboplatin are higher using estimated GFR from the novel Wright formula compared to standard Cockcroft–Gault approach. Dose reductions on cycles 2–4 were more apparent for GC80 compared to GC50 (56% vs 42% with =1 dose reduction) but dose delivered remained high with reductions to median of 77 mg/m^2 by cycle 4. Dose reduction rate was highest on GCb6 with 71% of patients experiencing =1 reduction, with median dose of AUC 4.5 at cycle 4. Gemcitabine dose reductions parallelled those seen with platins, occurring more frequently with GCb6. Overall DDI for platinum was high for all treatments but lowest for GCb6 (96% vs 99% vs 87%). Response rates were GC50 23%, GC80 33% and GCb6 28%. There was no evidence that dose reductions, treatment delays or DDI was associated with response thus the delivered dose of GC80 was sufficient to generate this 10% difference.

Conclusion Doses of cisplatin at 80 mg/m^2 and carboplatin at AUC6 based on the Wright formula in combination with gemcitabine are deliverable but individuals have higher chance of treatment delays and dose reductions with carboplatin. However the reduced DDI does not appear to have an effect on clinical outcomes.

S88 DAY CASE CISPLATIN DELIVERY FOR ADVANCED NSCLC PATIENTS: FASTER, CHEAPER, MORE DESIRABLE

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Background The BTOG2 trial was a phase III randomised clinical trial in the treatment of advanced NSCLC. It investigated the optimal dose of cisplatin (50 vs 80 mg/m^2 3-weekly), in combination with gemcitabine, and whether carboplatin (AUC6-Wright) could safely and effectively be substituted for the optimal cisplatin dose. The protocol recommended cisplatin given as an out-patient regimen designed to ensure diuresis while maintaining electrolytic balance. A previously reported audit by these authors, 48% of hospitals surveyed were admitting NSCLC patients for cisplatin /gemcitabine chemotherapy.

Methods Between April 2005 and November 2009, 909 patients were randomised to receive cisplatin, in the UK and Ireland, as part of BTOG2. The trial mandated submission of proposed chemotherapy delivery schedules to ensure standard parameters in terms of: total duration of delivery, mandatory use of mannitol, short 1-h delivery of cisplatin and total fluid volume <4 l. Data mining was used to investigate AEs relating to renal function, electrolyte imbalance and ototoxicity. AEs that could feasibly be related to the manner in which cisplatin was administered.

Results 2853 treatment cycles were available for analysis. Average treatment duration decreased from nearly 9 to 6 h and total fluid volume from as much as 7 to <4 l. As a result of participating in BTOG2, 97% of surveyed hospitals were able to deliver cisplatin in a day case setting. Toxicities feasibly related to the manner in which cisplatin was administered were comparable to the current available literature with <1% experiencing grade >2.

Conclusion Current NHS Tariffs in the UK quote a 60% higher price for patients being inpatient cisplatin treatment as opposed to outpatient. With the prima facie case that patients prefer outpatient treatment, it is important to achieve the maximum benefit from the existing drugs in a clinically deliverable way. The results indicate that administering cisplatin via a short hydration schedule of <6 h, even at 80 mg/m^2, is safe. It is unlikely that the many hospitals who changed their practice would have done so without the support of a running randomised controlled trial.

S89 A META-ANALYSIS OF LIMITED RESECTION VS LOBECTOMY FOR STAGE I NON-SMALL CELL LUNG CANCER

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WITHDRAWN

S90 NURSE SPECIALIST INPUT IS INDEPENDENTLY ASSOCIATED WITH ANTI-CANCER TREATMENT IN LUNG CANCER

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Introduction Lung cancer nurse specialists (LCNS) provide an extremely important service to patients. Their skill and expertise are valued very highly by both patients and colleagues, but it has proven difficult to measure their input objectively, leading to a lack of expansion (and in some areas contraction) of the workforce. Earlier this year the National Lung Cancer Audit (NLCA) reported that for 2009, patients who saw an LCNS were more than twice as likely to

Abstract S90 Table 1

	Number having treatment (%)		OR (95% CI) vs no nurse/unknown	
	Seen by nurse	Not seen by nurse/unknown	All patients	Patients surviving >28 days
Anti-cancer treatment	14 631 (64.5%)	3080 (40.4%)	2.04 (1.91 to 2.18)	1.87 (1.74 to 2.01)
Surgery	3456 (15.3%)	922 (12.1%)	1.06 (0.97 to 1.17)	1.01 (0.91 to 1.11)
Chemotherapy	7708 (34.0%)	1247 (16.4%)	2.05 (1.90 to 1.22)	1.87 (1.72 to 2.02)
Radiotherapy	7140 (31.5%)	1474 (19.3%)	1.57 (1.47 to 1.68)	1.47 (1.38 to 1.59)

receive active anti-cancer treatment, but the relevance of this observation is obscured by a lack of case-mix adjustment and a high proportion of unrecorded data. We have sought to examine this finding more closely on the 2010 dataset (with less unrecorded data) by performing case-mix adjustment.

Methods Details of all patients from English trusts that were submitted to the NLCA database in 2010 were obtained. We then performed logistic regression analysis based on sex, age, stage and performance status to calculate mutually-adjusted ORs for overall and specific treatments. Since a patient would have reduced opportunity to access an LCNS if their survival were short, a second model was created excluding those patients who had survival of <28 days.

Results Of 30 334 in the dataset, 42 were removed due to missing sex (4), in situ disease (2) and occult stage (36). 74.8% were recorded as having been seen by a LCNS, 7.8% were not seen, and in 17.4% the outcome was not recorded. The latter two groups were combined for the remainder of the analysis. ORs for treatment if seen by a nurse in both models are shown below.

Conclusions Contact with a LCNS was associated with increased rates of active treatment, particularly chemotherapy or radiotherapy, but not surgery, and this effect was independent of sex, age, disease stage and performance status. While the LUCADA dataset does not contain detailed information on individual reasons for LCNS assessments, this should be investigated further as there may be important additions to the known benefits LCNS provide to patients. However, regardless of the explanation, all lung cancer patients should have the opportunity to benefit from the expertise of a LCNS.

COPD systemic manifestations and cardiovascular disease

S91 *ASPERGILLUS FUMIGATUS* SENSITISATION IN PATIENTS WITH CHRONIC OBSTRUCTIVE PULMONARY DISEASE

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Background Bacteria and viruses have been implicated in exacerbations of chronic obstructive pulmonary disease (COPD) and bacteria are often isolated in stable state. Whether fungi are also commonly present and associated with clinical and pathological features of disease is uncertain.

Objectives To determine the frequency of filamentous fungal culture and sensitisation to *Aspergillus fumigatus* in COPD and its relationship to clinical outcomes.

Methods Subjects with COPD were recruited from a single centre into a 1-year observational study. Assessments of lung function, allergen testing, and sputum analysis for inflammation, bacterial and fungal cultures were undertaken in COPD subjects and in smoking healthy controls.

Results Fungi were cultured at baseline in 63/128 subjects of which 47/63 were *A fumigatus*. *A fungus* was cultured in 2/11 controls (both were *A fumigatus*). The total sputum cell count, sputum neutrophil % and inhaled corticosteroid dosage were significantly increased in COPD patients with a positive fungal culture compared to those without a fungal culture ($p<0.05$), but the within subject repeatability of fungal culture between stable visits was low ($K=-0.04$). Sensitisation to *A fumigatus* was present in 13% of COPD subjects and was associated with worse lung function (FEV_1 % predicted 39% vs 51%; $p=0.01$), but not related to fungal culture. Positive fungal cultures were present in 42/110 exacerbations and were not associated with bacterial culture or severity of exacerbation.

Conclusions *A fumigatus* sensitisation is related to poor lung function. Positive fungal culture is a common feature of COPD. The clinical significance of this remains uncertain.

S92 COGNITIVE FUNCTION & CEREBRAL WHITE MATTER TRACT MICROSTRUCTURE IN COPD

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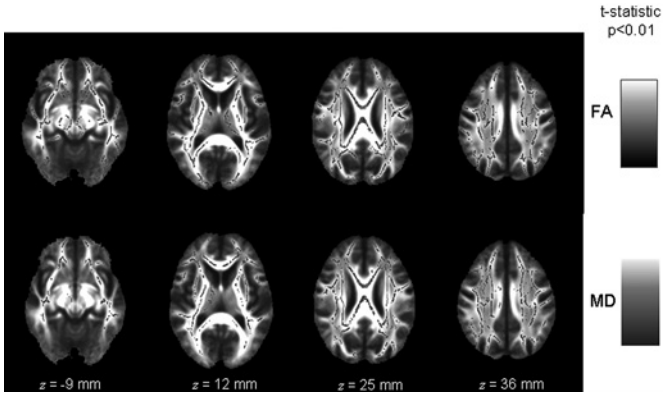
Rationale There is evidence to suggest that COPD leads to cognitive impairment in patients both with and without hypoxaemia[1]; but the pathogenesis remains poorly understood. Also relevant to potential brain pathology in COPD are common vascular comorbidities including hypertension, diabetes and older age. Diffusion tensor imaging (DTI) is a novel MRI technique sensitive to subtle changes in white matter due to vascular damage. This is the first study to investigate white matter microstructure and tract pathology in COPD.

Methods Participants (n=50) completed a full cognitive assessment (including executive function, working memory, episodic memory, processing speed, visuospatial ability) and 3T MRI scan. We compare 25 stable non-exacerbating COPD and 25 age-matched healthy controls. Volumes of grey matter (GMV), white matter (WMV), and white matter lesions (LV), were calculated. DTI data was analysed using tract based spatial statistics (TBSS).[2]

Results There are significant group differences between COPD patients and controls on all cognitive measures except episodic memory (executive function: $F=15.39$, $p<0.001$; working memory: $F=5.94$, $p=0.019$; episodic memory: $F=3.91$, $p=0.054$; processing speed: $F=11.64$, $p=0.001$; visuospatial ability: $F=10.10$, $p=0.003$). COPD patients did not differ from healthy controls on measures of normalised GMV ($t=0.229$, $p=0.820$) or WMV ($t=-0.727$, $p=0.471$). Normalised Lesion Volume was significantly greater in patients vs controls ($t=-2.27$, $p=0.029$). DTI-TBSS revealed lower fractional anisotropy (FA) and higher mean diffusivity (MD) values throughout the brain in COPD patients vs Control subjects. Group differences in white matter integrity were observed throughout the temporal, frontal, parietal and occipital lobes and amounted to 60% of the total FA skeleton. See Abstract S92 figure 1.

Conclusion This is the first paper to demonstrate that white matter integrity throughout the brain is significantly compromised in patients with COPD compared to age-matched Controls. This damage to white matter is also demonstrated by the significant group differences in white matter lesion load. No differences between patients and Controls were observed in brain volume, suggesting that group differences may be related to white matter integrity rather than atrophy.



Abstract S92 Figure 1

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