Abstract P161 Table 1 Characteristics of conventional and age-adjusted D-dimer cut-off values in patients ≥50 years old

	Conventional	Age x 10-adjusted	Age x 3-adjusted
Sensitivity (%)	100	76.9	100
Specificity (%)	53.7	84.7	47.7
Positive Predictive Value (%)	11.5	23.3	10.3
Negative Predictive Value (%)	100	98.4	100

(age x 10 ng/ml) cut-off values were applied to patients ≥50 years, and specificity and sensitivity were calculated.

Results (Table 1) Of the 389 presentations, 229 (58.9%) were from patients aged ≥50 years. 13 (11.5%) patients with positive D-dimers using the conventional cut-off, had VTE as confirmed by imaging tests. The sensitivity of the conventional D-dimer cut-off value was 100% in this older cohort, with a specificity of 53.7%. The age x10-adjusted cut-off improved specificity to 84.7%; however sensitivity was markedly reduced to 76.9%, with 3 patients (23.1%) with non-high clinical probability of VTE missed. Further analysis suggested that an age-adjusted cut-off factor of x3 would maintain sensitivity at 100%; however specificity was only 47.7%.

Conclusions We have identified that an age-adjusted cut-off factor of x10 significantly increased D-dimer specificity in older patients; however the sensitivity of this test was unacceptably compromised. A cut-off factor of x3 maintained sensitivity, but specificity was unsatisfactory compared to conventional values, although still higher than in most published series. We conclude that we cannot use an age-adjusted cut-off of x10 in our ≥50 year old population using this assay. Further work is required to identify an appropriate cut-off, concentrating on the >75 year old patients only. This would help to reduce the number of unnecessary tests and anxiety in this vulnerable group of patients.

P162 A TWO MONTH PROSPECTIVE STUDY: ARE CTPAS REQUESTED APPROPRIATELY AND IF NOT DO THEY DIAGNOSE ALTERNATIVE PATHOLOGIES?

S Antoniou, HT Tung, S Srivastava. *Charing Cross Hospital, Imperial College Healthcare NHS Trust, London, UK*

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Introduction Pulmonary Embolisms (PE) are clinically difficult to diagnose and associated with significant morbidity and mortality. Computerised Tomography Pulmonary Angiogram (CTPA) is routinely used to investigate suspected PE. Clinical concern and the increased availability of CTPA may mean that more patients may be receiving unnecessary radiation: a CTPA is approximately 15 mSv, equivalent to 750 chest radiographs.[1] In addition, detection of other pathology by CTPA often has minimal clinical impact.[2]

Aims To investigate our compliance with NICE guidelines in ordering CTPAs, and whether detecting alternative diagnoses justifies their use.

Methods This prospective study, in a London teaching hospital, reviewed data in all medical and oncology patients who had a CTPA from January to February 2014. Clinical diagnoses and risk scores were recorded according to national guidelines.

Results A CTPA was carried out on 91 patients (63% female); 20 had confirmed PE (22%). In 50 (55%), guidelines were not followed: 43 did not have D-dimers, of these 15 (35%) had cancer. Of those with PE, 35% were detected despite low Wells Scores (n = 7).

In 47 (52%) alternative diagnoses made on CTPA accounted for the presenting symptoms: 18 diagnoses were newly made on CTPA but only 13 led to a change in management. Incidental findings requiring following were made in 9.

Conclusions PEs remain difficult to diagnose. Clinical skills may not be accurate; our detection rate was 22%. In 55% NICE guidelines were not followed. In 15 this was due to d dimers not being performed in patients with cancer. The testing of d dimers is not routinely performed in our trust in patients with cancer, due to reduced clinical usefulness. A better scoring system may be required especially in cancer patients.

Alternative diagnoses made on CTPA do not appear to alter management in the majority, suggesting that they should not be used to make other diagnoses. More research is required in diagnosing PE to minimise radiation and contrast risks, and ensure CTPAs are of maximum clinical benefit.

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P163 ACCURACY OF INFLAMMATORY MARKERS TO DISTINGUISH BETWEEN PNEUMONIA AND PULMONARY EMBOLISM IN ACUTE SETTINGS

[1]L Chishimba, [2]F Iqbal, [2]A Kasule, [2]A Joynson, [2]J Williams, [3]S Argawal, [1]I Hussain. *[1]The University of Manchester, Manchester, UK; [2]Keele University, Stoke on Trent, UK; [3]University Hospital of North Staffordshire, Stoke on Trent, UK*

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Backgroud In emergency settings, the presence of significant rise in inflammatory markers in patients with acute respiratory symptoms suggest an alternative diagnosis rather than pulmonary embolism (PE), hence reduces the clinical probability of PE and the need for CTPA/VQ. However, it is increasingly recognised

Abstract P163 Table 1 Comparison of inflammatory markers and d-dimer levels between PE, CAP and ARTI

Characteristic	PE (n = 167)	CAP (n = 58)	ARTI (n = 63)	p-value
Gender, male (%)	84 (50.3)	31 (53.4)	40 (63.5)	0.358
Age (yrs), mean (sd)	66.9 (16.6)	73.4 (17)	63 (23)	0.016
Hospital stay (days), median (range)	5.31 (0–8)	7.08 (0–34)	1.51 (0–29)	<0.0001
30 day mortality, n (%)	7 (4.2)	16 (27.6)	9 (14.3)	<0.0001
CRP (mg/l), median (range)	67.3 (4–412)	88.9 (12–417)	68.9(9–284)	0.322
WCC (g/l), mean (sd)	10.9 (4.8)	11.9 (5.2)	12.17 (5.9)	0.2
D.dimer (ng/ml), median (range)	1000 (255–1000)	513 (150–1000)	170 (100–1000)	<0.0001
Positive d-dimer (%)	123 (96.9)	8 (53.3)	3 (18.8)	<0.0001

WCC=white cell count, CRP=C-reactive protein, Acute LRTI= symptoms of acute chest infection with normal CXR. Normal range: WCC=4–11 g/l; D-dimer= (mg/l); CRP=0–5 mg/l

that PE is associated with abnormal concentrations of many proteins involved in inflammation and vascular injury, yet there is inadequate data describing the difference in these proteins from infective processes.

Aims We aimed to determine whether there is a difference in inflammatory markers between acute PE and community acquired pneumonia (CAP) or acute lower respiratory infection (LRTI).

Methods A random sample of emergency departments (ED) and patients evaluated for acute PE at our institution (January 2013–December 2013) were retrospectively evaluated for D-dimer, C-reactive protein (CRP) and serum white cell (WCC) levels. PE was diagnosed by a positive CTPA in all cases. Inflammatory markers in confirmed PE cases were compared and matched with those of community acquired pneumonia (CAP) and acute lower respiratory infection (LRTI). We excluded all cases with incidental, chronic or previous PE.

Results A total of 295 patients were included (mean age 67.7 ± 18.45 yrs; 159 males), of which 167 (56.6%) had PE, 58 (19.7%) had CAP, 63 (21.4%) LRTI and seven (2.4%) had other respiratory conditions (Table 1). The mean WCC (g/l) was similar between PE (10.9 ± 4.8), pneumonia (11.9 ± 5.2) and acute LRTI (12.2 ± 5.9) (p = 0.2). Similarly, there were no significant differences among disease groups for median CRP levels (mg/l); PE (67.3 (4–412); CAP (88.9 (12–417) and acute LRTI (median 68.9 (9–284), (p = 0.322). In contrast, levels of D-dimer were significantly higher in PE than CAP or ARTI) (p = 0.000).

Conclusions In patients suspected of acute PE, unlike D-dimer, levels of WCC or CRP do not reliably distinguish between PE, pneumonia or acute LRTI. These may not be relied upon to determine the clinical probability of PE.

P164 ΔNTPROBNP PREDICTS SURVIVAL AND MORE ACCURATELY REFLECTS CHANGING RIGHT VENTRICULAR STRUCTURE AND FUNCTION THAN 6MWD IN PULMONARY HYPERTENSION

MJ Brewis, MK Johnson, AJ Peacock. *Scottish Pulmonary Vascular Unit, Glasgow, UK*

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Right ventricular (RV) function is known to predict survival in pulmonary hypertension (PH). Furthermore, increasing right ventricular volumes (RVEDVI, RV end diastolic volume and RVESVI, RV end systolic volume index) and falling ejection fraction (RVEF) whilst on treatment have been shown to determine poorer outcome.[1] Measurement of RV function by cardiac MRI (CMR) is not widely available and often poorly tolerated in very breathless patients. Monitoring of PH patients traditionally focuses on serial 6 min walk testing (6MWD) and N terminal pro brain natriuretic peptide (NTproBNP), a biomarker that has been shown to reflect RV function and structure.[2] We hypothesised that ΔNTproBNP is a superior non invasive marker of ΔRV function than Δ6MWD, and predicts survival.

Abstract P164 Table 1 Pearson correlations for ΔNTproBNP and Δ6MWD with indices of ΔRV function. Abbreviations; right ventricular ejection fraction RVEF; right ventricular end diastolic volume index RVEDVI; right ventricular end systolic volume index RVESVI; stroke volume index SVI

	ΔNTproBNP			Δ6MWD		
RV variable	(n)	Correlation coefficient	P value	(n)	Correlation coefficient	P value
ΔRVEF	101	-0.517	<0.0001	121	0.277	0.002
ΔRVEDVI	101	0.517	<0.0001	121	-0.093	NS
ΔRVESVI	101	0.664	<0.0001	121	-0.234	0.01
ΔSVI	100	-0.407	<0.0001	120	0.367	<0.0001

Methods 59 patients with precapillary PH whom underwent serial CMR between 2004 and 2014 with 6MWD and/or NTproBNP sampling within 1 month of scan were retrospectively included. 146 ΔRV function values were calculated. For survival analysis, patients were censored at last day of study (24/6/14) or if lost to follow up. Survival was taken from the date of the second CMR scan. Due to the interaction between cardiac MRI values, only univariate survival analysis was performed.

Results ΔNTproBNP correlates more closely with ΔRVEF, ΔRVEDVI, ΔRVESVI than 6MWD (table1). Both ΔNTproBNP and Δ6MWD predicted survival [HR 1.001 95% CI 1.001–1.002 p

Conclusion ΔNTproBNP is superior to Δ6MWD as a surrogate marker of changing RV function which can be easily evaluated in the clinic setting. Both ΔNTproBNP and Δ 6MWD predict survival in PH.

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P165 AMBULATORY MANAGEMENT OF SUSPECTED PULMONARY EMBOLISM AT A DISTRICTGENERALHOSPITAL. A 2 YEAR REVIEW

A Griffiths. *Royal Glamorgan Hospital, Llantrisant, UK*

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Background Studies have suggested that outpatient (OP) management of suspected pulmonary embolism (PE) is feasable.[1] At our DGH (popn 289400) in 2012 we found that over a 2 month period most suspected PE patients (suitable for ambulatory care) were being identified resulting in significant (17 nights) bed savings.[2]

The aims of repeating our study were

1) to ascertain the proportion of patients who had a CTPA that were managed as OP and subsequent nights saved 2) to identify any further patients that could have been managed as OP and potential nights saved 3) a comparison with 2012

Methods RADIS was used to collect all CTPA's performed between 1st Jan 2014 and 28th February 2014. Inclusion criteria: Ambulatory, normal heart rate, respiratory rate, blood pressure and oxygen saturations, any patient who was managed as an OP. Simpflified PESI Score <1. Exclusion criteria: Pre-existing in-patients that had a CTPA ordered where the primary admission (and in-patient stay) was not for suspected PE,patients who had their CTPA on the same day of discharge, OP CTPA where waiting time was >2 weeks, sPESI Score >1, clinical concern.

Results For the above period 102 CTPA's were performed (105 in 2012). Average time from request to CTPA was 4.7 h (0.5–24 h. 4.1 hrs in 2012) Figure 1 shows the excluded patients.9 patients were included;7 were female, average age 47 years (23–66 years). All had a sPESI score