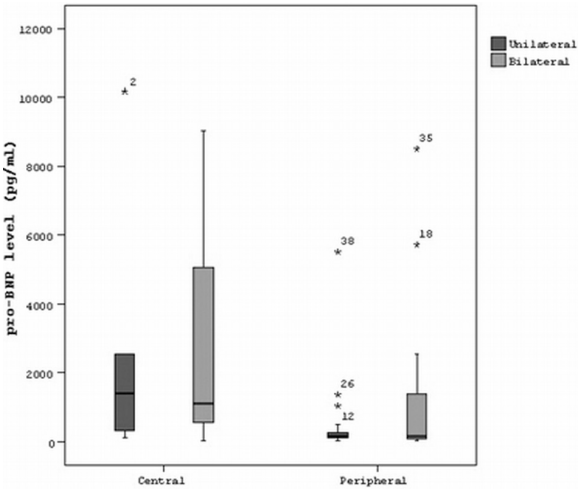
United Kingdom; [2]Respiratory, Chase Farm Hospital, London, United Kingdom; [3]Radiology, Chase Farm Hospital, London, United Kingdom

Introduction: Currently there is no radiological scoring system for Pulmonary Embolism (PE) and studies suggest such a system may provide risk stratification data.
Null hypothesis: Radiological severity grading of PE has no prognostic information.
Methods: All CT Pulmonary Angiograms (CTPAs) over a 6month period were analysed and demographic data collected. A radiologist graded all positive CTPAs, into mild, moderate and severe according to agreed criteria. Variables including: troponin; D-Dimer; CRP; length of in-patient stay; mortality data and re-admissions secondary to PE were recorded.
Results: 312 CTPAs were performed: 240 were negative (76.9%) and 72 patients had a PE (23.1%). In the PE group, 21 were male (29.2%); 51 female (70.8%) and the average length of in-patient stay was 19 days. This was significantly longer in the moderately/severe group than mild (p=0.01)
There is no correlation between RV dimension and severity of PE. D-Dimer and troponin increase with radiological severe PE but is not statistically significant. More patients with radiological severe PE are re-admitted (13.6%) compared with mild/moderate group (5.32%), however samples were insufficient for analysis, as was the mortality data.
13.9% of CTPAs had the diagnosis changed or disputed. 60.4% negative CTPAs had no D-Dimer collected, 40.9% had an alternative diagnosis to PE.
Conclusions: This study suggests PE affects 2.4x more females than males and radiological severe PE is associated with longer in-patient stay and greater re-admissions. An adequately powered, prospective study of positive CTPAs is needed to further evaluate use of this grading system.

P2341
Correlation of levels of N-terminal pro-B-type natriuretic peptide with localization of thrombus in acute pulmonary embolism
Evrim Eylem Akpinar, Esen Sayin, Esra Buyuk, Meral Gulhan. *Ufuk University, Department of Chest Diseaes, Ankara, Turkey*

Aim: Brain-natriuretic peptide (BNP) is a hormone which is released from heart.The aim of the study was to investigate whether N- terminal- pro- BNP (pro-BNP) could predict localization of thrombus in patients with acute pulmonary embolism.
Method: The patients who were evaluated in emergency department, who had thrombus on helical computed tomography were enrolled. Thrombi which were localized on main/right-left pulmonary artery were classified as central,ones which were present at segmentary/subsegmentary levels as peripheral. Echocardiogram was performed and pro-BNP levels were measured.
Results: Fourty-nine patients were enrolled to the study. The thrombi of 63.3% patients were unilaterally located, of 36.7% bilaterally, 18.4% of patients had thrombi that were central, 81.6% patients had peripheral. The difference between pro-BNP levels of who had central and peripheral thrombus was significant (p=0.039).



Pro-BNP levels of patients who had right ventricule overload (pulmonary HT, septal hypochinesia, dilatation on right heart) were higher (p<0.001, p=0.003, p=0.003). The pro-BNP levels of patients who were followed up in intensive care unit, needed trombolytic treatment were higher (p<0.001, p=0.002).
Conclusion: Higher pro-BNP levels indicates higher probability of more central location of thrombus, resulting adverse clinical course and having right ventricular overload.

264. Clinical features of pulmonary thromboembolism

P2340
A radiological grading system for risk stratification of acute pulmonary embolism: A pilot study
Anita Jayadev[1], Karthikan Srikanthan[2], Urmi Gupta[2], Arti Mahto[2], Zaid Dabbagh[3], Syed Saboor[2]. *[1]Respiratory, Whipps Cross Hospital, London,*

Abstract printing supported by Chiesi. Visit Chiesi at Stand D.30

P2342

Pulmonary thromboembolism during acute chest syndrome in sickle cell disease

Armand Mekontso-Dessap[1], Jean Francois Deux[2], Nour Abidi[1], Cecile Lavenu-Bombled[5], Giovanna Melica[3], Bertand Renaud[4], Bertrand Godeau[3], Serge Adnot[6], Laurent Brochard[1], Christian Brun-Buisson[1], Frederic Galacteros[3], Alain Rahmouni[2], Anoosha Habibi[3], Bernard Maître[7].
[1]Medical Intensive Care Unit, Assistance Publique-Hôpitaux de Paris, Groupe Hospitalier Mondor, Creteil, France; [2]Medical Imaging Unit, Assistance Publique-Hôpitaux de Paris, Groupe Hospitalier Mondor, Creteil, France; [3]Internal Medicine and Sickle Cell Center, Assistance Publique-Hôpitaux de Paris, Groupe Hospitalier Mondor, Creteil, France; [4]Department of Emergency Medicine, Assistance Publique-Hôpitaux de Paris, Groupe Hospitalier Mondor, Creteil, France; [5]Hemostasis Laboratory, Assistance Publique-Hôpitaux de Paris, Groupe Hospitalier Mondor, Creteil, France; [6]Physiology and Functional Explorations Unit, Assistance Publique-Hôpitaux de Paris, Groupe Hospitalier Mondor, Creteil, France; [7]Pulmonary Disease Unit, Assistance Publique-Hôpitaux de Paris, Groupe Hospitalier Mondor, Creteil, France

Background: Although pulmonary infarction and pulmonary embolism (PE) have been reported in sickle cell disease patients during acute chest syndrome (ACS), there is no comprehensive study evaluating the prevalence of PE during ACS.
Methods: We screened 125 consecutive patients during 144 ACS episodes to perform a multidetector computed tomography (MDCT). 121 MDCTs (in 103 consecutive patients) were included in the study.
Findings: 20 MDCTs were positive for PE, determining a prevalence of 17% (95% confidence interval from 10% to 23%). Revised Geneva clinical probability score was similar between patients with PE and those without. D-dimers testing was very often positive (95%) during ACS. A precipitating factor for ACS was less frequently found in patients with PE as compared to those without. Patients with PE exhibited significantly increased platelet counts (517 [273-729] vs. 307 [228-412] 10^9/L, $p<0.01$) and lower bilirubin (28 [19-43] vs. 44 [31-71] µmol/L, $p<0.01$) levels at the onset of ACS as compared to others. In addition, patients with PE had a higher platelet count peak (537 [345-785] vs. 417 [330-555] 10^9/L, $p=0.048$) and smaller bilirubin peak (36 [18-51] vs. 46 [32-83] µmol/L, $p=0.048$) and lactate dehydrogenase peak (357 [320-704] vs. 604 [442-788] IU/L, $p=0.01$) during hospital stay as compared to others.
Interpretation: PE is not a rare event in the context of ACS and seems more likely in patients with higher platelets counts and lower haemolytic rate during ACS. SCD patients presenting with respiratory symptoms suggestive of ACS may benefit from evaluation for PE.

P2343

The sensitivity of D-dimer testing versus multislice CT in the diagnosis of postpartum pulmonary embolism in symptomatic high risk women

Mohamed Badawy, Ibrahiem Hassnin, Ahmed Shahin, Khalid Karam. *Chest Department, Sohag University, Sohag Faculty of Medicine, Sohag, Egypt Obstetric Department, Sohag University, Sohag Faculty of Medicine, Sohag, Egypt Obstetric Department, Assiut University, Assiut Faculty of Medicine, Assiut, Egypt Radiology Department, El Azhar University, Azhar Faculty of Medicine, Cairo, Egypt*

Background: Early detection of postpartum pulmonary embolism is a corner stone in prevention of its associated maternal mortality
Patients and methods: We applied d-dimer testing and Multislice CT scanning (MSCT) with contrast of the chest of patients diagnosed climnically in the first postcesarean week as suspicious of pulmonary embolism. MSCT imaging results were taken as standard.
Results: Out of 2359 cases, 60 cases (2.54%) were considered clinically highly suggestive of pulmonary embolism. Clinical parameters highly suggestive of pulmonary embolism were dyspnea (85%), overweight (51%), tachypnoea (55%) and all cases showed high D- dimer test above 500 Although d-dimer showed 100% specificity, compared to multislice CT (MSCT) scanning, yet 93.3% (56/60) of the patients showing positive d-dimer testing were proved by MSCT to be free of PE. This translates into a 6.7% positive predictive value obtained by d-dimer. Number needed to screen (NNS), in sense of number of patients needed to diagnose cases of pulmonary embolism, among patients tested positive for D-dimer testing was 15 (60/4=15).
Conclusions: Postpartum d-dimer testing in patients showing suspicious symptoms of pulmonary embolism is not suitable for exclusion test, yet a strong screening tool.

P2344

Genetic mutations in Turkish population with pulmonary embolism and deep venous thrombosis

Elif Kupeli[1], Hasibe Verdi[2], Abdullah Simsek[1], Fatma Belgin Atac[2], Fusun Oner Eyuboglu[1]. *[1]Pulmonary Diseases, Baskent University School of Medicine, Ankara, Turkey; [2]Medical Biology, Baskent University School of Medicine, Ankara, Turkey*

Venous thromboembolism (VTE) is an universal health hazard throughout the world. Pulmonary embolism (PE) along with deep venous thrombosis (DVT) is a major clinical manifestation of VTE and inherited and acquired risk factors increase the risk. We aimed to evaluate the relationship between factor V (G1691A, A1090G, and A1299G), prothrombin (PT G20210A), methylenetetrahydrofolate reductase (MTHFR C677T) mutations, plasminogen activator inhibitor 1 (PAI-1 -675) polymorphism, and VTE in Turkish population. Between years 2005-2009, 80 Turkish patients diagnosed with PE and PE+DVT and 104 controls at our institution and agreeing to participate, were consecutively recruited in the study. Heterozygous factor V Leiden (FVL) mutation was significantly higher among patients ($p=.04$) with allele frequency of 6.3% ($p=.01$). Heterozygous PT G20210A mutation was also significantly higher among patients ($p=.001$) with allele frequency of 6.9% ($p=.003$). MTHFR 677TT genotype was significantly higher in patients ($p=.009$) with allele frequency of 23.8% ($p=.005$). No significant difference was found in FV A1090G and FV A1299G mutation rate as well as PAI-1 genotypes and their allele frequencies ($p>.05$). Thus, frequencies of FV G1691A, PT G20210A, and MTHFR C677T mutations are higher in patients with VTE. FV A1090G, FV A1299G mutations, and PAI-1 gene polymorphisms may not be a risk factor for VTE in Turkish population. However, further follow-up evaluation in larger, multi-center series is required to determine the role of these genetic mutations as a risk factor for VTE in Turkish population.

P2345

Does anatomic location of deep venous thrombosis affect the clinical findings and course in the patient of pulmonary embolism

Eylem Sercan Ozgur[1], Kerem Karaca[2], Cengiz Ozge[1], Sibel Atis Nayci[1].
[1]Department of Chest Diseases, Mersin University School of Medicine, Mersin, Turkey; [2]Department of Cardiovascular Surgery, Mersin University School of Medicine, Mersin, Turkey

Aim: Deep venous thrombosis (DVT) in proximal veins carries a significantly higher risk of pulmonary embolism (PE) than in distal veins. However, the effect of DVT anatomic location on clinical findings and course of PE is not known. We, therefore, investigated whether anatomic location of DVT could affect the clinical findings and course of PE.
Methods: Data of 81 patients diagnosed as PE between 2007-2011 were evaluated retrospectively. The patients were divided into two subgroups as proximal (safen, femoral, iliac veins) and distal disease (popliteal, crucial veins) according to DVT anatomic location. The patients with and without DVT, and also the subgroups of DVT were compared in respect of clinical severity PE, duration of hospitalisation, mortality rate, echocardiographic and laboratory findings.
Results: Doppler USG of 72 patients showed that 26 (36.1%) had no DVT, 29 (40.3%) proximal, and 17 (23.6%) distal disease. Dyspnea were more common ($p=0.036$) and mean PaO_2 were significantly lower ($p=0.022$) in the patients with DVT than without DVT, while there were no significant differences between two groups in respect of PE clinical severity, hospitalisation duration, mortality rate, echocardiographic findings, $PaCO_2$, D-Dimer and troponin levels. Additionally, there were no significant differences between proximal and distal disease subgroups in respect of any symptom, clinical or laboratory findings evaluated.
Conclusion: This study showed that the patients with PE had more common rate of dyspnea symptom and hypoxemia in DVT existing than without DVT, however, anatomic location of the thrombosis did not affect the clinical findings and course of PE.

P2346

Prognostic value of two clinical scores in patients with acute symptomatic pulmonary embolism

Marta Ferrer Galvan[1], Teresa Elías Hernández[1], Candela Caballero Eraso[1], Luis Jara Palomares[1], Leticia Garcia[2], Rosa Nieto[2], Remedios Otero Candelera[1], David Jimenez Castro[2]. *[1]Unidad Médico Quirúrgica de Enfermedades Respiratorias, Hospital Universitario Virgen del Rocio, Sevilla, Spain; [2]Hospital Universitario Ramón y Cajal, Servicio de Neumología, Madrid, Spain*

Introduction: Clinical models may accurately identify patients at low risk of overall death in the first month after diagnosis of PE; such patients might benefit from an abreviatted hospital stay or outpatient therapy.The aim of our study was to compare two scores (Spanish and PESI simplified-PESIs- scores) in an external cohort of patients with PE.
Methods: Patients from two Spanish hospitals diagnosed with acute symptomatic PE were consecutively included. The primary study outcome was 30-day overall mortality. The secondary outcome was a composite endpoint based on 30-day mortality or recurrent thromboembolism or major bleeding. We calculated the sensitivity, specificity, Predictive values and Likelihood ratios in both scores for primary and secondary outcomes. Receiver-operating characteristic (ROC) curves were assessed for both scores.
Results: The study included 1574 patients.861 were women (58%). The mean age was 67 years. The Spanish score classifed 59% of patients at low risk and PESIs score only 29%. The NPV was significantly higher for PESIs scale considering primary and the secondary outcomes. There was no significant differences in the area under the curve of both scores.
Conclusions: Sensitivity results in both scores are higher but PESIs score is slightly superior to Spanish score.
PESIs score would have more acceptability due to better sensitivity and easy applicability.

Abstract printing supported by Chiesi. Visit Chiesi at Stand D.30

P2347

TAPSE as a prognostic factor in hemodinamically stable pulmonary embolism

J.L. Lobo[1], P. Sobradillo[1], I. Obieta-Fresnedo[2], A. Rivas[1], R. Valle[4], C. Navarro[5], D. Jimenez[3]. *[1]Respiratory Department, Txagorritxu Hospital Bask Country, Vitoria, Alava, Spain; [2]Cardiology Depepartment Txagorritxu Hospital, Vitoria, Alava, Spain; [3]Respiratory Department, Ramon y Cajal Hospital, Madrid, Spain; [4]Internal Medicine Department, Sierrallana Hospital, Santander, Cantabria, Spain; [5]Internal Medicine Department, Corporación Sanitaria Parc Taulí, Sabadell, Barcelona, Spain*

Introduccion: Right Ventricular Dysfunction (RVD) is a predictor of mortality in Pulmonary Embolism. The reproducibility of classic parameters is low. The TAPSE is easier and more reproducible.
Aim: To asses whether TAPSE has prognostic value in patients with PE.
Methods: PROTECT is a multicentric study of patients with hemodynamically stable PE; evolution data were gathered through 30 days. Echocardiography in the first 48 hours. RVD criteria: 1) RVEDD >30; 2) RV/LV >1.0; 3) hypokinesia subjectively evaluated; or 4) TR jet >2.8 m/s. Statistical analysis with SPSS (v. 15). Means were compared with T-Student for quantitative variables; Chi-square for qualitative. OR and corresponding 95CI calculated with univariate logistic regression. Multivariate analysis could not be carried out due to the low number of events.
Results: The study included 630 patients. Global mortality was 3,8%, and mortality due to PE was 0,8%. TAPSE could be determined in 91,7% of the patients. Only 16% showed an abnormal TAPSE (≤15). Univariate analysis for 30-day mortality is shown in the table.

Table 1. Univariate analysis for 30 days mortality in the 550 patients without atrial fibrillation

	No PE Mortality (n=545)	PE Mortality (n=5)	OR (95CI)
Hypokinesia	116 (21.4%)	4 (80%)	14.66 (1.62-132.38)
RVEDD >30	232 (45.1%)	4 (80%)	4.86 (0.54-431.80)
Ratio RV/LV >1.0	85 (16.6%)	3 (60%)	7.55 (1.24-45.89)
RVD	313 (73.5%)	5 (100%)	
TAPSE ≤15	71 (14.0%)	4 (80%)	24.62 (2.71-223.44)

Conclusions: 1. The probability of dying of PE in the first month is multiplied by more than 20 in patients with a TAPSE ≤ 15. 2. The strength of the association seems clearly superior to the classic echocardiographic parameters of right ventricle dysfunction.

P2348

Are we screening survivors of acute pulmonary embolism (PE) for chronic thromboembolic pulmonary hypertension (CTEPH)?

Maria Wilczynska, Keith Taylor. *Respiratory Medicine, Glan Clwyd Hospital, Rhyl, Wales, United Kingdom*

Background: Incidence of CTEPH following idiopathic PE has been reported as 4%. The British Thoracic Society (BTS) recommends that patients with massive or submassive PE should undergo echocardiography 6-12 weeks following the index event.
Aim: To investigate local practice in the follow-up of patients with acute PE to devise management guidelines.
Methods: A retrospective study of 110 patients diagnosed with acute PE at our hospital between 2007 and 2008 was conducted. Mean age was 68.6 years (range 27-100), 40 (36%) were male and 18 (16%) had previous venous thromboembolism. In 51 (46%) patients PE was idiopathic.
Results: All patients diagnosed with PE were normotensive and 27 (25%) had in-patient echocardiography (ECHO). In 5 (18%) patients scan confirmed RV dilatation and 2 of them had repeated ECHO within 2 months. Subsequently one patient was diagnosed with CTEPH and underwent pulmonary endarterectomy. In the group of patients with acute PE but without in-patient echocardiography 40 of 83 (48%) received a follow-up appointment (mean 4 months) and 10 (25%) had follow-up ECHO. Two more patients were diagnosed with CTEPH during this period (mean 34 months) with an overall incidence of 2.9%.
Conclusion: Recorded outcome, literature review and the BTS/ERS guidelines resulted in the development of local protocol for the screening acute PE survivors for CTEPH.

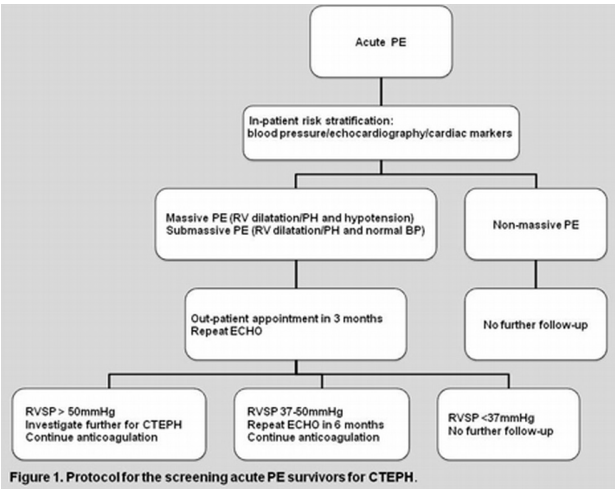


Figure 1. Protocol for the screening acute PE survivors for CTEPH.

P2349

Incidence of chronic thromboembolic pulmonary hypertension in patients after acute pulmonary embolism

Su-Qiao Yang[1], Yuan-Hua Yang[1], Zhen-Guo Zhai[1], Tu-Guang Kuang[1], Juan-Ni Gong[1], Jian-Guo Zhu[1], Yi-Dan Li[2], Ya-Feng Wu[2], Chen Wang[1,3]. *[1]Department of Respiratory, Beijing Institute of Respiratory Medicine, Beijing Chao-Yang Hospital, Capital Medical University, Beijing, China; [2]Department of Ultrasound, Beijing Chao-Yang Hospital, Capital Medical University, Beijing, China; [3]Department of Respiratory, Beijing Hospital, Beijing, China*

Background: Recent studies suggest that chronic thromboembolic pulmonary hypertension (CTEPH) following acute pulmonary embolism (PE) may be more common than previously thought.
Objective: To investigate the incidence of CTEPH and associated risk factors through a systematic screening in patients after acute PE in China.
Methods: A cohort study of consecutive patients with acute PE in a national referral institute was retro and prospectively approached by a questionnaire for the presence of new or increased complaints of dyspnea after acute PE episode. Subsequently, these patients were evaluated for the presence of pulmonary hypertension with echocardiography, perfusion lung scanning and right heart catheterization (RHC) in follow-up period. Pulmonary hypertension was defined as a systolic pulmonary artery pressure ≥50 mmHg at rest in the presence of residual perfusion defects at perfusion lung scanning.
Results: From 2006 to 2010, 488 patients with acute PE were screened, and 475 patients were included. Overall mortality after a median follow-up period of 21 months was 12.9%; 74 patients were lost to follow-up. In the remaining patients, nine were diagnosed with pulmonary hypertension by echocardiography, and two of the nine patients underwent right heart catheterization (RHC). The incidence of CTEPH after acute PE was 2.24%. In Cox regression, 173 cases which had no missing data of biomarkers were involved. The analysis showed that protein C deficiency (hazard ratio, 10.40, 95% confidence interval, 1.06 to 102.25) increased the risk of CTEPH after acute PE.
Conclusions: The incidence of CTEPH after acute PE was 2.24%. Protein C deficiency may increase the risk of CTEPH.

P2350

Association between right ventricular dysfunction and diameter of right descending pulmonary artery on chest X-rays in pulmonary embolism

Yasin Abul[1], Savas Ozsu[1], Sait Karakurt[2], Beste Ozben[3], Ismet Durmus[4], Ahmet Toprak[3], Tevfik Ozlu[1], Turgay Celikel[2]. *[1]Pulmonary Medicine, Karadeniz Technical University Faculty of Medicine, Trabzon, Turkey; [2]Pulmonary Medicine, Marmara University Faculty of Medicine, Istanbul, Turkey; [3]Cardiology, Marmara University Faculty of Medicine, Istanbul, Turkey; [4]Cardiology, Karadeniz Technical University Faculty of Medicine, Trabzon, Turkey*

Right ventricular dysfunction (RVD) has a prognostic significance on mortality in pulmonary embolism (PE). Echocardiographic measurement is user-dependent and requires experience. Cardiac biomarkers including troponin-T, BNP has been suggested to show RVD instead of echocardiography. However these markers are not available at all centers and they are known as expensive. Association between the grade of pulmonary hypertension and diameter of right descending pulmonary artery on PA chest X-rays (male<16 mm female <14 mm) has been shown previously. In present study, possible association between RVD in PE and diameter of right descending pulmonary artery on chest X-rays was investigated. 89 patients with the diagnosis of PE were included (M:F=41/48; age=65±13.5). Both diameter of right descending pulmonary artery on PA chest X-ray and RVD on echocardiography were measured. These two parameters were compared by pearson χ^2, and sensitivity and spesificity of diameter of right descending pulmonary artery on PA chest X-ray for defining RVD was analyzed by ROC analysis. Diameter of right descending pulmonary artery on PA chest X-ray is more frequently increased in PE patients with RVD ($p<0.001$). The AUC was 0.76 for defining RVD by the diameter of right descending pulmonary artery on PA chest X-ray having sensitivity 78% and spesificity 63% at the diameter of 16.25 mm.
In conclusion, diameter of right descending pulmonary artery on PA chest X-ray may be used for the defining RVD which has prognostic importance in PE.

Abstract printing supported by Chiesi. Visit Chiesi at Stand D.30

P2351

Chronic thromboembolic pulmonary hypertension associated with Klippel Trenaunay syndrome: A retrospective series of 5 patients

Andrei Seferian, Xavier Jaïs, David Montani, Sven Günther, Delphine Natali, Laurent Savale, Florence Parent, Dermot Steven O'Callaghan, Olivier Sitbon, Marc Humbert, Gerald Simonneau. *Univ Paris Sud, AP-HP, Service de Pneumologie et Réanimation Respiratoire, Centre National de Référence de l'Hypertension Pulmonaire Sévère, INSERM U999, Hôpital Antoine Béclère, Clam*

Introduction: Klippel Trenaunay syndrome (KTS) is a rare congenital disorder characterized by the triad: (1) cutaneous capillary malformations; (2) soft tissue and bone hypertrophy; (3) multiple vascular malformations at arterial, venous and lymphatic level. KTS is associated with recurrent venous thromboembolism (VTE), that may lead to chronic thromboembolic pulmonary hypertension (CTEPH).
Patients and methods: We retrospectively reviewed clinical and haemodynamical characteristics of 5 patients with CTEPH associated with KTS referred to our center between 1993 and 2010.
Results: Four patients had a previous history of VTE. At diagnosis, 1 patient was in NYHA functional class (FC) II and 4 patients were in NYHA FC III. Pulmonary haemodynamics were: mean pulmonary artery pressure (mPAP)= 56.4±9.3 mmHg, cardiac index (CI)= 2.74±0.89 l/min/m^2 and total pulmonary resistance (TPR)= 20.2±12.4 Wood units. One patient had proximal CTEPH, underwent a pulmonary endarterectomy and normalized his pulmonary pressures after surgery. The other 4 patients had inoperable CTEPH due to distal lesions and were treated with specific pulmonary arterial hypertension (PAH) therapy. Two patients were clinically and haemodynamically improved by oral therapy with a mean reduction of 22% of the mPAP and 60% of the TPR after a mean follow-up of 50 months. One patient died after 34 months due to recurrent VTE complications and one patient needed a heart-lung transplantation after 15 years of follow up.
Conclusion: CTEPH is a rare but severe complication of KTS. Careful monitoring of patients with KTS in a multidisciplinary setting is thus appropriate.

P2352

Clinical research of central and lung hemodynamics in patients with pulmonary thrombendarterectomy

Olga Maltseva, Oleg Sizov. *Faculty of Medicine, SPb State University, St. Petersburg, Russian Federation Anestesiology, City Hospital No. 2, St. Petersburg, Russian Federation*

The aim of study: to find factors have influence on patient condition after pulmonary thrombendarterectomy (PTA)
Patients and methods: 13 patients with chronic palindromic lung thromboembolism (CLT)were enrolled in prospective study.Invasive lung and systemic hemodynamic monitoring was perfomed after induction of anesthesia before the operation by thermodilution using PICCO PLUS and VOLEF device. Arterial blood gases were estimated at the same time.Four people (the 1st group) died in early postoperative period of reperfusion lung edema. 9 people (the 2nd group) was discharged from hospital.
Results: All patients had:
- Cardiac volume changes: reduction of global end-diastolic volume index less than 680 ml/m^2, extension of right ventricle end-diastolic volume index more than 195 ml/m^2, correlation between right and left heart volume was 2:1
- Extravascular lung water index was more than 11 ml/kg, lung vases permeability was not heightened significantly
- Contractility was decreased: cardiac output (CI) index less than 2,5l/min/m^2, left ventricle contractility index (dPmax) less than 1000 mm.hg. right ventricle ejection fraction less than 14%
- CI and dPmax were beyond above in second group
- Right ventricle afterload was raised significantly:Pulmonary vascular resistance varied from 250 to 2500, mean 1350
- Pulmonary and systemic vascular resistance ratio was 1:1,28 in first group and 1:3,19 in 2nd group.

Conclusions: Patients with CLT have specific hemodynamic changes.
Reduction of contractility and increase of afterload may have an influence to development of reperfusion lung edema supplementary study is necessary to expose factors estimated surviving after PTA.

P2353

Incidental findings on computer tomography pulmonary angiograms, a UK district general hospital's experience

Achmed Kamara[1], Alex Gruffyd-Jones[2], Tasneem Rahman[1], Peter Taylor[3], Gerrard Phillips[2]. *[1]Respiratory Medicine, Southampton University Hospitals NHS Trust, Southampton, United Kingdom; [2]Respiratory Medicine, Dorset County Hospital, Dorchester, United Kingdom; [3]Radiology, Dorset County Hospital, Dorchester, United Kingdom*

Background: CTPA is 1st line imaging of suspected pulmonary emboli (PE) in UK hospitals.
Aims and objectives: CTPA yields 3-D images of thoracic and upper abdominal organs, thus detects unanticipated diagnoses termed "incidental findings" (IF). We investigated the nature of IFs on CTPAs done at Dorset County Hospital.
Methodology: All CTPA reports from October-09 to March-10 were retrospectively reviewed, noting diagnosis of PE (positive CTPA), additional findings, particularly IFs, validated against previous imaging reports.
Results: Total CTPA reports were 490 (51% males). PE was diagnosed on 113 (23.0% ± 3.73%, 95% CI). Total additional findings were 781. Mean additional findings per CTPA was 1.6±0.11 (95% CI). Total IFs were 515, 335 of pulmonary origin (65.05% ±4.66%, 95% CI), including pleural effusions (81), consolidation (66), emphysema (36), lung collapse (35), pulmonary nodules (26), pulmonary fibrosis (23), lymphadenopathy (13), pulmonary oedema (13), bronchiectasis (10) and malignancy (9). Other IFs included aortic dissection (1), abdominal aortic aneurysm (5), aortic thrombus (1), pericardial effusion (22), cardiomegaly (15), lobulated heart lesion (1), obstructed biliary (1) and renal tracts (1), pancreatitis (1), incarcerated hiatus hernia (1), free intra-abdominal gas (1) and ruptured breast prosthesis (1).
Discussion: Proportion of CTPAs positive for PE, 23%, was comparable to other studies. This study further emphasises importance of CTPA in not only diagnosing PE, but also detecting alternate pathologies, thus enabling optimal patient management, though additional costs would have arisen in pursuing the IFs.

P2354

Prognostic role of serum gamma-glutamyl transferase levels in patients with pulmonary thromboembolism

Savas Ozsu[1], Yasin Abul[1], Suha Turkmen[2], Yilmaz Bulbul[1], Funda Oztuna[1], Tevfik Ozlu[1]. *[1]Department of Pulmonary Medicine, Karadeniz Technical University, School of Medicine, Trabzon, Turkey; [2]Department of Emergency Medicine, Karadeniz Technical University, School of Medicine, Trabzon, Turkey*

Gamma-glutamyl transferase (GGT) is one of the most important markers of oxidative stress. Serum GGT activity is an independent risk factor for myocardial infarction and cardiac death in patients with coronary artery disease. Serum GGT has not previously been elucidated in the pulmonary thromboembolism (PTE).
The study included 163 patients and spiral chest pulmonary angiography were the most used to confirm acute PE (98%). On admission serum GGT (reference value, 5-61 mg/dL) was measured. Receiver operating characteristic analysis was performed to determine the GGT cut-off levels with regard to prognosis. The patients with hepatic disease and alchol abuse were excluded from the study.
The median age was 72 years, and 106 (65%) were females. All-cause in hospital mortality 14.1% and 30-day mortality was 16.6%. Median GGT levels in patients who 30-day died than in surviving patients was higher (48 mg/dL vs 32 mg/dL, p= 0.01). Serum GGT values≤26 show high negative predictive values for all-cause mortality (91%). In univariate analysis, a cut-off level of GGT>26 mg/dL for 30-day mortality were OR: 3.1 (95% CI: 1.2–7.9).
The present study suggests that serum GGT level appears to be risk stratification patients with PTE. The results should be confirmed with other randomized prospective studies.

P2355

Acute pulmonary embolism in patients of advanced age

Thomas Berghaus, Wolfgang von Scheidt, Martin Schwaiblmair. *Medical Department I, Klinikum Augsburg, University of Munich, Augsburg, Germany*

Background: It has been speculated that the atypical clinical presentation of acute pulmonary embolism (PE) in older patients leads to a delay in diagnosis and therefore contributes to the worse prognosis of older patients presenting with acute PE.
Methods: In this single-centre study we investigated the delay in diagnosis and its relation with in-hospital mortality in 202 consecutive patients with acute PE in a period of 14 months. The study population was divided in a younger (≤ 65 years) and an older age group (> 65 years).
Results: Older patients present more often hypoxic (p = 0.017) and with a history of syncope (p = 0.046) than younger patients. Delay in diagnosis was not statistically different in both age groups (3.1±3.0 days in the younger and 3.5±3.1 days in the older age group, p = 0.450). Age above 65 years was significantly associated with an increased risk for in-hospital mortality (OR 4.36, 95% CI 0.93-20.37, p = 0.043). Delay in diagnosis was not associated with an increase of in-hospital mortality in univariate or multivariate analysis.
Conclusions: The atypical clinical presentation of acute PE in patients older than 65 years cannot be considered as a risk factor for late diagnosis. Moreover, delay in diagnosis is not related to the higher in-hospital death rate of older patients suffering from acute PE.

P2356

Incidence of recurrent thromboembolism and chronic thromboembolic pulmonary hypertension after pulmonary embolism

Eva Serasli, Maria Antoniadou, Nikolaos Moisiadis, Vasilis Michaelidis, Dimitra Siopi, Venetia Tsara. *2nd Chest Departement, "G. Papanikolaou" Hospital, Thessaloniki, Macedonia, Greece*

Aim: To assess the incidence of recurrent thromboembolism and chronic thromboembolic pulmonary hypertension (CTPH) and the associated risk factors.
Patients-Methods: Prospective study in 126 patients (mean age 54.4±15.8 years) with confirmed acute pulmonary embolism (PE), during the period 2004-2010 (mean time follow up 32±19.7 months). For the evaluation of CTPH, patients un-

Abstract printing supported by Chiesi. Visit Chiesi at Stand D.30

derwent transthoracic echocardiography, ventilation-perfusion lung scanning and the diagnosis was established with right heart catheterization.
Results: Recurrent venous thromboembolism was documented in 8, 7% of patients, with an incidence of 4.5% after 12 months (95% CI: 0.6-8.4%) and 11.5% after 24 months (95% CI: 5.0-18%). The mortality was 2.6% at 1 year (95% CI: 0.0-5.5%), 3.7% at 2 years (95% CI: 0.0-7.4%) and 7.7% at 5 years (95% CI: 0.0-16.1%). Older age (p=0.046), SPAP>50mmHg (p=0.009) and thrombolysis (p=0.005) were significantly associated with increased risk for recurrence. CTPH was developed in 7 of 126 patients (5.6%). During the acute episode of PE, 33 patients (26.2%) presented with SPAP>40 mmHg and 54% of them were with SPAP>50mmHg. CTPH developed in 7 of these 33 patients. Severe PH at the time of the acute PE (SPAP>50mmHg) was associated with an increased risk of CTPH (odds ratio: 20.385, SE: 0.88, P<0.05).
Conclusions: The rates of recurrent thromboembolism underscore the need for long term follow up. Risk factors must be considered for the duration of anticoagulant therapy. During the first year after an acute episode of PE, CTPH appears to developed in a substantial number of patients. The severity of PH should increase physicians' awareness for the potential of CTPH.

P2357

Survey of thrombophilia causes in patient with deep vein thrombosis admitted in Sari's Imam Khomini Hospital during 2009

Ali Sharifpour, Qasem Janbabaee, Hasan Nattaj, Dr. Davoodi, Dr. Okhovvatian, Ahmadi Nejad. *Pulmonary, Mazandaran University of Medical Sciences, Sari, Islamic Republic of Iran; Oncology, Mazandaran University of Medical Sciences, Sari, Islamic Republic of Iran*

Introduction: Thrombophilia is a condition in which there is a tendency for clot formation and has an incidence of 1 per 1000 annually. About 2/3 of attacks occurs as DVT and the remainder as PE or associated with DVT. Knowing these hereditary factors can be helpful in designating a proper diagnostic template when after it will be possible for each thrombophilic patient to be diagnosed in its proper way.
Materials and methods: This is a descriptive study. Our patients were 70 DVT patients whom were bedridden at Imam hospital, Sari, Mazandran, Iran. After admission, they underwent heparin therapy followed by warfarin therapy for 6 months. In the next stage warfarin was stopped and after 2 weeks of heparin therapy, required lab tests were requested. Needed data were collected by a questionnaire and data were processed by $SPSS_{18}$ statistical software.
Findings: 22 people (31.4%) were males and 48 people (68.6%) were females. Mean age was 42.06±14.6 y. 12 of patients (17.1%) had diminished levels of factor V Leiden while 58 people (82.9%) had normal levels. In 84% of patients there were normal levels of fibrinogen and other 14% had increased levels of fibrinogen.
Result:

Table 1. Results

V-Leiden	17%	C protein	2.8%
Low fibrinogen	14%	Anti phospholipid	1.4%
Protein S	12.8%	OCP	14.5%
High-VIII	8.5%	Bedridden	2.8%
High-IX	8.5%	Pregnancy	2%
III Anti thrombim	4.2%	Recent surgury	1.4%
G20210A	3.4%	Malignany	1.4%

Conclusion: Our study shows that DVT is most common in females. In through of non lab factors, OCP, history of no activity and trauma is more companionship with incidence of DVT. In through of genetic factors, FVL and high level of fibrinogen and low level of S protein are common.

P2358

Pulmonary anatomopathologic analysis and clinical manifestations related to different diseases in patients with pulmonary thromboembolism – An autopsy study

Aline Domingos Ruppert, Alexandre de Matos Soeiro, Edwin Roger Parra, Vera Luiza Capelozzi. *Pathology, Faculdade de Medicina da Universidade de São Paulo, São Paulo, Brazil*

Patients, who died due to pulmonary thromboembolism (PTE), may present different clinical manifestations and symptoms depending on their underlying diseases and comorbidities. The aim of this study was describe and associated demographic and etiologic data, anatomic pathological findings and in-vivo manifestations (Acute Respiratory Failure [ARF], Hemodynamic Instability [HI] or Sudden Death) from autopsy reports of PTE patients.
Methods: We reviewed 291 autopsies of patients whose cause of death was PTE. The following data were obtained: age, sex, clinical in-vivo manifestations, post-mortem pathological patterns and main associated underlying diseases.
Results: The median age was 64 years, 127 men and 164 women. Pulmonary histopathological changes were: diffuse alveolar damage (DAD), pulmonary edema (PE), alveolar hemorrhage (AH) and lympho/plasmacytic interstitial pneumonia (LPIP). The most common clinical manifestation was ARF (28.9%), followed by SD (27.5%) and HI (26.8%). The most prevalent pulmonary finding was PE (26.8%). Chronic Obstructive Pulmonary Disease was positively correlated to LPIP (p=0.04). Linking in-vivo manifestations to pulmonary changes were found significative relations between: ARF and PE (OR=2.99; p=0.01); ARF and AH (OR=2.70; p=0.04); ARF and DAD (OR=8.79; p=0.03); HI and HA (OR=3.38, p=0.01) and HI and DAD (OR=11.43; p=0.02).
Conclusions: The understanding of pulmonary physiopathological mechanism involved with each PTE-associated disease can improve diagnosis in order to offer prompt treatment and reduce mortality.
Financial support: FAPESP, CNPq.

P2359

Correlation of right ventricular ejection fraction with tricuspid annular plane systolic excursion by electrocardiogram-gated 320 slice CT in chronic thromboembolic pulmonary hypertension

Toshihiko Sugiura[1], Nobuhiro Tanabe[1], Nobusada Funabashi[2], Naoko Kawada[1], Yukiko Matsuura[1], Takayuki Juzyo[1], Rintaro Nishimura[1], Ayumi Sekine[1], Norituki Yanagawa[1], Seiichiro Sakao[1], Yasunori Kasahara[1], Koichiro Tatsumi[1]. *[1]Department of Respirology,Graduate School of Medicine, Chiba University, Chiba, Japan; [2]Department of Cardiovascular Science and Medicine, Graduate School of Medicine, Chiba University, Chiba, Japan*

Purpose: There is a strong correlation between right ventricular ejection fraction (RVEF) and tricuspid annular plane systolic fraction (TAPSE) determined by echocardiography in subjects with pulmonary hypertension (PH). However, it is unknown whether there a correlation between RVEF and TAPSE determined by 320-slice CT. We tested whether TAPSE measured by enhance ECG-gated volume 320-slice CT correlates with RVEF and correlates with pulmonary arterial pressure (PAP) and pulmonary vascular resistance (PVR) obtained by right heart catheterization (RHC) in chronic thromboembolic pulmonary hypertension (CTEPH) subjects.
Materials and methods: 33 subjects (11 male, 61±10 yrs) with CTEPH underwent enhanced retrospective ECG-gated volume 320-slice CT (Aquilion ONE, Toshiba) and RHC. CT images were reconstructed every 5% from 0-95% of the R-R interval and a series of apical 4-chanber images. TAPSE was measured from systolic displacement of the RV freewall and tricuspid annular plane junction. RV end-systolic and end-diastolic true volumes were measured from 3-dimensional reconstruction and used to calculate RVEF.
Results: TAPSE and RVEF were 14.5±3.5mm and 47.0±14.3%, respectively. In RHC, mean PAP (mPAP) and PVR were 41±12 mmHg and 683±364 dyne sec cm^{-5}, respectively. The correlation coefficient of TAPSE with RVEF was 0.78 (P<0.001). The correlation coefficients of TAPSE with mPAP and PVR were -0.63 (P<0.001) and -0.64 (P<0.001), respectively.
Conclusions: TAPSE by ECG-gated 320-slice CT correlated strongly with RVEF and significantly with mPAP and PVR acquired by RHC in subjects with CTEPH.

Abstract printing supported by Chiesi. Visit Chiesi at Stand D.30