| Author (Last name)/Ref | Year | Subjects | Age (mean) | Male n (%) | CT parameters | Echo parameters | MRI parameters | Interval between RHC and index test (mean) | Comments |
|---|---|---|---|---|---|---|---|---|---|
| Arcasoy [1] | 2002 | 374 | 51 | 160 (43) | | sPAP, right atrial pressure | | 72 hours | Systolic pulmonary artery pressure by echocardiography is inaccurate in patients with advanced lung disease |
| Burger [2] | 2011 | 100 | 65.2 | 64 (64) | AUC for MPA diameter:0.85;sensitivity, specificity, positive (PPV), and negative predictive value (NPV) and accuracy of 78%, 91%, 83%, 88%, and 86% respectively | | | | MPA diameter from low-dose unenhanced multi-slice CT can predict pulmonary hypertension |
| Dellegrottaglie [3] | 2007 | 61 | | | | | curvature ratio (Civs/Cfw) Civs - curvature of interventricular septum Cfw - curvature of left ventricular free wall | Same day | |
| Denton [4] | 1997 | 33 | 48.6 | 10 (30) | - | PASP ≥ 30mmHg | - | 1.8 months | All enrolled patients had systemic sclerosis |
| Davarpanah [5] | 2011 | 101 | 44.3 | 58 (57) | right and left ventricular minor axis diameter; pulmonary artery, aortic, and superior vena caval diameters; | RV systolic pressure | | | |

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|---|---|---|---|---|---|---|---|---|---|
| | | | | | right ventricular thickness; contrast reflux; and configuration of the interventricular septum | | | | |
| Edwards [6] | 1998 | 12 | | 5 (77) | | | | | |
| Rice [7] | 2016 | 54 | 58 | 30 (56) | - | Speckle tracking ECHO RV free wall strain | | within 48 hours | All enrolled patients had severe COPD |
| Revel [8] | 2009 | 45 | 61.5 | 31 (69) | ECG-gated 64-section CT: Right pulmonary artery (RPA) distensibility RVOT wall thickness | - | - | within 24 months (36 patients - within 1 month) | |
| Ray [9] | 2018 | 51 | 59.5 | 15(29) | - | - | PA pulsatility <40% | Same day | Only patients with mPAP ≥ 25mmHg or RVSP ≥ 35mmHg on echo were enrolled |
| Rajaram [10] | 2012 | 81 | 62 | 12(15) | PA size, PA/Ao, LV diameter/RV diameter, RV wall thickness, TR grade | Tricuspid gradient (TG), RV size, TG ≥ 40 mm Hg had a sensitivity of 86% and specificity 82% | ventricle areas and ratios, delayed myocardial enhancement, position of the interventricular septum, right ventricular mass, ventricular mass index (VMI), and pulmonary artery distensibility] VMI ≥ 0.45 had a sensi- tivity of 85% and specificity 82% | within 48 hours | All patients had connective tissue disease |
| NG [11] | 1999 | 50 | | | ratio of the diameters of | - | - | 21.6 days | |

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|---|---|---|---|---|---|---|---|---|---|
| | | | | | the main pulmonary artery and of the ascending aorta (rPA) >1 | | | | |
| Alhamad [12] | 2011 | 134 | 52 | 37 (28) | main PAD, PAD/AAD, RPAD, LPAD | - | - | within 72 hours | |
| Chan [13] | 2011 | 101 | 61.4 | 55 (54) | Main PA diameter, right descending pulmonary artery (RDPA) diameter, true RDPA diameter, RV free wall thickness, hilar diameter, RV wall/LV wall ratio, main PA/AA ratio | | | 3 days | |
| Dornia [14] | 2012 | 172 | 58 | 74 (43) | MPAD; widest diameter of AA, LPAD and RPAD at the widest portion distal to the bifurcation; widest diameter of a segmental artery and widest diameter of the corresponding segmental bronchus in the posterior basal segment of the right lower lobe | - | - | 3 months | |
| Kam [15] | 2013 | 40 | 69 | 21 (52.5) | Mean pulmonary artery diameter (MPAD): MPAD >34 mm -> 100% specificity, | - | - | within 1 year | |

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|---|---|---|---|---|---|---|---|---|---|
| | | | | | MPAD <27 mm -> 100% sensitivity | | | | |
| Lange [16] | 2013 | 78 | 56.4 | 27 (35) | Mean pulmonary artery diameter (MPAD) ≥2.9cm. Sensitivity 77%, Specificity 62%, NPV 84%, PPV 50% | - | - | 100 days | |
| Mahammedi [17] | 2013 | 400 | 63.5 | 169 (42) | MPAD >29.5 mm -> Sensitivity 70.8%, Specificity 79.4%; MPAD > 31.5mm -> Specificity 90.2%; MPAD/AAD >1 -> Sensitivity 70.8%, Specificity 76.5% | - | - | 3 months | |
| Corson [18] | 2014 | 191 | 55.5 | 47 (24.6) | MPAD > 29mm -> Sensitivity 89%, Specificity 83%; ratio of MPAD to aorta diameter (rPA) >1 -> Sensitivity 89%, Specificity 82%. | - | - | 7 months | |
| Iyer [19] | 2014 | 60 | 56.25 | 26 (43.3) | PA/A >1 -> Sensitivity 73%, Specificity 84% | PASP (poor association with hemodynamic metrics of RHC) | - | 4 months | All patients had severe COPD |
| McCall [20] | 2014 | 48 | 56.3 | 9 (18.7) | MPAD ≥ 30.8 mm -> Sensitivity 81.3%, Specificity 87.5% | - | - | 6 months | All patients had scleroderma |

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| Siegel [21] | 2017 | 27 | 50 | 18 (66.7) | Dynamic CT pulmonary angiogram: Time to trigger (TT), 9-12 seconds: Sensitivity 75%-92%, Specificity 56%-88% for mPAP ≥ 40 mmHg | - | - | 45 days | |
| Bech - Hanssen [22] | 2013 | 118 | 53 | 68 (58) | | PASP > 39 mmHg -> PLR 4.7; PASP ≤ 29 mmHg -> NLR 0.12 | - | 48 hours | |
| Colin [23] | 2018 | 119 | 51 | 88 (74) | PA diameter, PA:A ratio, LV, RV, LA, RA volume index. PA diameter ≥ 29 mm (sensitivity 62%, specificity 84%) PA:A ratio ≥ 0.92 (sensitivity 76%, specificity 64%) RV volume index ≥ 90 ml/m2 (sensitivity 88%, specificity 76%) | TR gradient > 27 mm (sensitivity 74%, specificity 81%) | - | 6 weeks | All patients had HFrEF |
| Colle [24] | 2003 | 165 | 48 | 116 (70) | | Tricuspid regurgitant jet, MPAP (using cut-off of 30 mm Hg): 100%, 96%, 59%, 100% (sensitivity, specificity, PPV, NPV) | - | 1 week | All patients had end-stage liver disease |
| Condliffe [25] | 2011 | 89 | 66 | 13 (15) | PA diameter, AA diameter, RV diameter, | Tricuspid gradient | | 3 months | All patients had suspected SSc-PAH |

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|---|---|---|---|---|---|---|---|---|---|
| | | | | | LV diameter, TR grade dPA/dAA ≥ 1 (sensitivity 80%, specificity 89%, PPV 95%, NPV 61%) | TGecho ≥ 30 (sensitivity 96%, specificity 40%, PPV 79%, NPV 80%) | | | |
| Corte [26] | 2009 | 66 | 57 | 38 (58) | | RVSP | | NR | All patients had diffuse lung disease |
| Cotton [27] | 2002 | 78 | 51 | 48 (37) | | mean PASP > 50 mmHg (PPV 37.5%, NPV 91.9%) | | 21 days | All patients had end-stage liver disease |
| Fisher [28] | 2009 | 65 | 54 | 10 (15) | | mean PAP, doppler estimated stroke volume | | | Doppler echocardiography may frequently be inaccurate for measuring PAP and cardiac output in PH patients |
| Javier [29] | 2011 | 139 | 51 | 43 (40) | | | | 2 days | |
| Kojonazarov [30] | 2007 | 60 | 49.8 | 55 (92) | | mean PA pressure (sensitivity 70%, specificity 88%, NPV 72%, PPV 88%) | | 7 days | Used for the diagnosis of high-altitude pulmonary hypertension |
| Kuriyama [31] | 1983 | 58 | 49 | | The diameters of main, left, proximal right, distal right, interlobar, and left descending pulmonary arteries | | | NR | |
| Lanzarini [32] | 2004 | 86 | 52 | 64 (74) | | PAPd/TR > 11 mmHg (sensitivity 100%, specificity 60%, PPV 80%, NPV 100%) PAP ≥ 32 mmHg (sensitivity 88%, specificity 100%, PPV 100%, NPV 84%) | | 24 hours | |

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| Liu [33] | 2018 | 46 | 46 | 16 (35) | | Tricuspid regurgitant peak velocity, PASP, TAPSE, RV wall thickness | | NR | |
| Mogollon [34] | 2008 | 67 | | | | average systolic PAP: 63.28 mm Hg | | | Echocardiography showed a sensitivity of 89% to diagnose significant PHT and 46% specificity |
| Mukerjee [35] | 2004 | 137 | 64 | | | Right ventricular diameter, tricuspid gradient, mean PAP | | | Echocardiography and pulmonary function tests can be used as adjunct to clinical examination to diagnose PH in patients of systemic sclerosis |
| Nathan [36] | 2008 | 110 | | | | RVSP > 30 mmHg (sensitivity 86.4%, specificity 13.2%, PPV 34.4%, NPV 64.8%) | | within 7.5 months | All patients had idiopathic pulmonary fibrosis |
| O'Sullivan [37] | 2018 | 139 | 83.6 | 80 (57.6) | PA/AA ratio ≥ 80 (sensitivity 56%, specificity 88%, PPV 95.5%, NPV 30.6%) | | | NR | All patients had severe aortic stenosis |
| Opotowsky [38] | 2012 | 108 | 61.3 | 39 (36.1) | | PHpvd | | 46.5 days | |
| Piccinino [39] | 2017 | 36 | 68 | 9 (25) | | sPAP, RA area, RA volume, etc | | 48 hours | |
| Pienn [40] | 2013 | 21 | 59 | 9 (42.9) | contrast bolus speed (cut-off 317 mm/s), sensitivity 100%, specificity 100% | | | 1 month | Dynamic contrast-enhanced CT was used |

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| Penning [41] | 2001 | 27 | 28.6 | 0 | | Mean PAP: 55.4 mmHg | | | Echocardiography overestimated PAP compared with RHC |
| Pérez-Enguix [42] | 2007 | 71 | | | CT (diameter of principal pulmonary artery >29mm and diameter of lobar artery/diameter of lobar bronchiole ratio (LA/LB) >1 ) | PAP >35 mmHg | | | The sensitivity of the finding PPA 29 mm was 65.9%, and 85.7% when combined with LA/LB >1. |
| Sanz [43] | 2009 | 94 | 53 | 21 (22) | | | PA stiffness Reduced PA pulsatility (<40%): sensitivity 93%, specificity 63% | Same day | |
| Hsu [44] | 2008 | 49 | | | | Right ventricular systolic pressure | Dilation of the main PA, maximum blood flow velocity in the PA | | Echocardiography had high specificity, high positive predictive value, and highest AUC but low sensitivity |
| Laaban [45] | 1989 | 41 | 63 | 32 (78) | | right ventricular peak systolic pressure and right atrium pressure gradient, PAP pressure | | | |
| Matsuyama [46] | 2001 | 64 | 64 | | | Right jugular vein flow velocity,Df/Sf ratio | | | Transcutaneous jugular vein flow velocity measurement can predict pulmonary hypertension in chronic obstructive pulmonary disease patients. |

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| Sertogullarindan [47] | 2014 | 104 | 60.3 | 0 | | right ventricular peak systolic pressure and right atrium pressure gradient, PAP pressure | | | The sensitivity of the measurement to diagnose PH was 91%, specificity 80% |
| Tan [48] | 1997 | 45 | 48 | | main PA diameter (MPAD) ≥ 29 mm (sensitivity 87%, specificity 89%, PPV 0.97, positive LR 7.91 | | | NR | |
| Kim [49] | 2000 | 39 | 53 | 17 (44) | | Right ventricular systolic pressure >50 mmHg | | | |
| Saner [50] | 2006 | 74 | 49.6 | 40 (54) | | MPAP, pulmonary capillary wedge pressure (PCWP), pulmonary vascular resistance (PVR), and cardiac index (CI) | | | |
| Hua [51] | 2009 | 105 | | | | sPAP, mPAP | | | 2D-ECHO has very high sensitivity and negative predictive value |

Supplementary Table 1: Detailed characteristics of included studies

**Supplementary References:**


1. Arcasoy SM, Christie JD, Ferrari VA, Sutton MS, Zisman DA, Blumenthal NP, Pochettino A, Kotloff RM. Echocardiographic assessment of pulmonary hypertension in patients with advanced lung disease. Am J Respir Crit Care Med 2003; 167:735–740.
2. Burger IA, Husmann L, Herzog BA, Buechel RR, Pazhenkottil AP, Ghadri JR, Nkoulou RN, Jenni R, Russi EW, Kaufmann PA. Main pulmonary artery diameter from attenuation correction CT scans in cardiac SPECT accurately predicts pulmonary hypertension. Journal of Nuclear Cardiology. 2011 Aug 1;18(4):634-41.
3. Dellegrottaglie S, Sanz J, Poon M, et al. Pulmonary hypertension: ac- hypertension in systemic sclerosis. Br J Rheumatol 1997;36:239-43.
4. Denton CP, Cailes JB, Phillips GD, et al. Comparison of Doppler echocardiography and right heart catheterization to assess pulmonary hypertension in systemic sclerosis. Br J Rheumatol 1997;36:239e43.
5. Davarpanah AH, Hodnett PA, Farrelly CT, Shah SJ, Cuttica M, Ragin AB, Carr JC, Yaghmai V. MDCT bolus tracking data as an adjunct for predicting the diagnosis of pulmonary hypertension and concomitant right-heart failure. American Journal of Roentgenology. 2011 Nov;197(5):1064-72.
6. Edwards PD, Bull RK, Coulden R. CT measurement of main pulmonary artery diameter. The British journal of radiology. 1998 Oct;71(850):1018-20.
7. Rice JL, Stream AR, Fox DL, Geraci MW, Vandivier RW, Dorosz JL, Bull TM. Speckle tracking echocardiography to evaluate for pulmonary hypertension in chronic obstructive pulmonary disease. COPD: Journal of Chronic Obstructive Pulmonary Disease. 2016 Sep 2;13(5):595-600.
8. Revel MP, Faivre JB, Remy-Jardin M, Delannoy-Deken V, Duhamel A, Remy J. Pulmonary hypertension: ECG-gated 64-section CT angiographic evaluation of new functional parameters as diagnostic criteria. Radiology. 2009 Feb;250(2):558-66.
9. Ray JC, Burger C, Mergo P, Safford R, Blackshear J, Austin C, Fairweather D, Heckman MG, Zeiger T, Dubin M, Shapiro B. Pulmonary arterial stiffness assessed by cardiovascular magnetic resonance imaging is a predictor of mild pulmonary arterial hypertension. The international journal of cardiovascular imaging. 2019 Oct 1;35(10):1881-92.
10. Rajaram S, Swift AJ, Capener D, Elliot CA, Condliffe R, Davies C, Hill C, Hurdman J, Kidling R, Akil M, Wild JM. Comparison of the diagnostic utility of cardiac magnetic resonance imaging, computed tomography, and echocardiography in assessment of suspected pulmonary arterial hypertension in patients with connective tissue disease. The Journal of rheumatology. 2012 Jun 1;39(6):1265-74.
11. Ng CS, Wells AU, Padley SPG. A CT sign of chronic pulmonary arterial hypertension: the ratio of main pulmonary artery to aortic diameter. J Thorac Imaging. 1999;14:270 –278.
12. E.H. Alhamad, A.A. Al-Boukai, F.A. Al-Kassimi, et al., Prediction of pulmonary hypertension in patients with or without interstitial lung disease: reliability of CT findings, Radiology 260 (3) (2011) 875e883.
13. Chan KL, Currie PJ, Seward JB, et al. Comparison of three Doppler ultrasound methods in the prediction of pulmonary artery pressure. J Am Coll Cardiol 1987;9:549e54.
14. Dornia C,LangeTJ,BehrensG, StiefelJ,Müller-WilleR,Poschenrieder F, et al. Multidetector computed tomography for detection and characterization of pulmonary hypertension in consideration of WHO classification. J Comput Assist Tomogr 2012;36:175-80.
15. Kam JC, Pi J, Doraiswamy V, et al. CT scanning in the evaluation of pulmonary hypertension. Lung 2013;191:321–6.
16. Lange TJ, Bornia C, Stiefel JL, Stroszczynski C, Arzt M, Pfeifer M, Hamer OW. Increased pulmonary artery diameter on chest computed tomography can predict borderline pulmonary hypertension. Pulmonary circulation. 2013 Apr;3(2):363-8.
17. A. Mahammedi, A. Oshmyansky, P.M. Hassoun, D.R. Thiemann, S.S. Siegelman, Pulmonary artery measurements in pulmonary hypertension: the role of computed tomography, J. Thorac. Imaging 28 (2) (2013) 96e103.
18. Corson N, Armato III SG, Labby ZE, Straus C, Starkey A, Gomberg-Maitland M. CT-based pulmonary artery measurements for the assessment of pulmonary hypertension. Academic radiology. 2014 Apr 1;21(4):523-30.

19. Iyer AS, Wells JM, Vishin S, Bhatt SP, Wille KM, Dransfield MT (2014) CT Scan-Measured Pulmonary Artery to Aorta Ratio and Echocardiography for Detecting Pulmonary Hypertension in Severe COPD. Chest 145: 824–832. doi: 10.1378/chest.13-1422 PMID: 24114440
20. R.K. McCall, J.G. Ravenel, P.J. Nietert, A. Granath, R.M. Silver, Relationship of main pulmonary artery diameter to pulmonary arterial pressure in scleroderma patients with and without interstitial fibrosis, J. Comput. Assisted
21. Siegel Y, Bleicher D, Gordon MK, Fertel D. Computed Tomography Pulmonary Angiogram Dynamic Parameter Correlation With Pulmonary Pressure and Pulmonary Hypertension Etiologies. Journal of computer assisted tomography. 2017 Sep 1;41(5):779-83. Tomogr. 38 (2) (2014) 163e168.
22. Bech-Hanssen O, Karason K, Rundqvist B, Bollano E, Lindgren F, Selimovic N. Can pulmonary hypertension and increased pulmonary vascular resistance be ruled in and ruled out by echocardiography?. Journal of the American Society of Echocardiography. 2013 May 1;26(5):469-78.
23. Colin GC, Gerber BL, de Ravenstein CD, Byl D, Dietz A, Kamga M, Pasquet A, Vancraeynest D, Vanoverschelde JL, D'Hondt AM, Ghaye B. Pulmonary hypertension due to left heart disease: diagnostic and prognostic value of CT in chronic systolic heart failure. European radiology. 2018 Nov 1;28(11):4643-53.
24. Colle IO, Moreau R, Godinho E, Belghiti J, Ettori F, Cohen-Solal A, Mal H, Bernuau J, Marty J, Lebrec D, Valla D. Diagnosis of portopulmonary hypertension in candidates for liver transplantation: a prospective study. Hepatology. 2003 Feb;37(2):401-9.
25. Condliffe R, Radon M, Hurdman J, Davies C, Hill C, Akil M, Guarasci F, Rajaram S, Swift AJ, Wragg Z, van Beek E. CT pulmonary angiography combined with echocardiography in suspected systemic sclerosis-associated pulmonary arterial hypertension. Rheumatology. 2011 Aug 1;50(8):1480-6.
26. Corte TJ, Wort SJ, Gatzoulis MA, Macdonald P, Hansell DM, Wells AU. Pulmonary vascular resistance predicts early mortality in patients with diffuse fibrotic lung disease and suspected pulmonary hypertension. Thorax. 2009 Oct 1;64(10):883-8.
27. Cotton CL, Gandhi S, Vaitkus PT, Massad MG, Benedetti E, Mrtek RG, Wiley TE. Role of echocardiography in detecting portopulmonary hypertension in liver transplant candidates. Liver transplantation. 2002 Nov;8(11):1051-4.
28. Fisher MR, Forfia PR, Chamera E, Housten-Harris T, Champion HC, Girgis RE, Corretti MC, Hassoun PM. Accuracy of Doppler echocardiography in the hemodynamic assessment of pulmonary hypertension. American journal of respiratory and critical care medicine. 2009 Apr 1;179(7):615-21.
29. Sanz J, García-Alvarez A, Fernández-Friera L, Nair A, Mirelis JG, Sawit ST, Pinney S, Fuster V. Right ventriculo-arterial coupling in pulmonary hypertension: a magnetic resonance study. Heart. 2012 Feb 1;98(3):238-43.
30. Kojonazarov BK, Imanov BZ, Amatov TA, Mirrakhimov MM, Naeije R, Wilkins MR, Aldashev AA. Noninvasive and invasive evaluation of pulmonary arterial pressure in highlanders. European Respiratory Journal. 2007 Feb 1;29(2):352-6.
31. Kuriyama K, Gamsu G, Stern RG, Cann CE, Herfkens RJ, Brundage BH. CT-determined pulmonary artery diameters in predicting pulmonary hypertension. Invest Radiol 1984;19:16-22.
32. Lanzarini L, Fontana A, Campana C, Klersy C. Two simple echo-Doppler measurements can accurately identify pulmonary hypertension in the large majority of patients with chronic heart failure. The Journal of heart and lung transplantation. 2005 Jun 1;24(6):745-54.
33. Liu J, Fei L, Huang GQ, Shang XK, Liu M, Pei ZJ, Zhang YX. Right ventricle performances with echocardiography and 99mTc myocardial perfusion imaging in pulmonary arterial hypertension patients. Experimental Biology and Medicine. 2018 May;243(9):754-61.
34. Jimenez MM, Ortega AE, Letran MC, Pérez RH, Gallé EL, Márquez JS, Avilés ÁH, Rodríguez NR, López MF, de la Yglesia RP, Martínez ÁM. Correlation of echocardiographic and hemodynamic parameters in pulmonary hypertension assessment prior to heart transplantation. InTransplantation proceedings 2008 Nov 1 (Vol. 40, No. 9, pp. 3023-3024). Elsevier.
35. Mukerjee D, St George D, Knight C, et al. Echocardiography and pulmonary function as screening tests for pulmonary arterial hypertension in systemic sclerosis. Rheumatology (Oxford) 2004;43:461e6.

36. Nathan SD, Shlobin OA, Barnett SD, et al. Right ventricular systolic pressure by echocardiography as a predictor of pulmonary hypertension in idiopathic pulmonary fibrosis. Respir Med 2008;102:1305e10.
37. O'Sullivan CJ, Montalbetti M, Zbinden R, Kurz DJ, Bernheim AM, Liew A, Meyer MR, Tüller D, Eberli FR. Screening For Pulmonary Hypertension With Multidetector Computed Tomography Among Patients With Severe Aortic Stenosis Undergoing Transcatheter Aortic Valve Implantation. Frontiers in cardiovascular medicine. 2018 Jun 5;5:63.
38. Opotowsky AR, Clair M, Afilalo J, Landzberg MJ, Waxman AB, Moko L, Maron BA, Vaidya A, Forfia PR. A simple echocardiographic method to estimate pulmonary vascular resistance. The American journal of cardiology. 2013 Sep 15;112(6):873-82.
39. Piccinino C, Giubertoni A, Zanaboni J, Gravellone M, Sola D, Rosso R, Ferrarotti L, Marino PN. Incremental value of right atrial strain for early diagnosis of hemodynamic deterioration in pulmonary hypertension: a new noninvasive tool for a more comprehensive diagnostic paradigma. Journal of Cardiovascular Medicine. 2017 Nov 1;18(11):866-74.
40. Pienn M, Kovacs G, Tscherner M, Avian A, Johnson TR, Kullnig P, Stollberger R, Olschewski A, Olschewski H, Bálint Z. Non-invasive determination of pulmonary hypertension with dynamic contrast-enhanced computed tomography: a pilot study. European radiology. 2014 Mar 1;24(3):668-76.
41. Penning S, Robinson KD, Major CA, et al. A comparison of echocardiography and pulmonary artery catheterization for evaluation of pulmonary artery pressures in pregnant patients with suspected pulmonary hypertension. Am J Obstet Gynecol 2001;184:1568e70.
42. Perez-Enguix D, Morales P, Tomas JM, Vera F, Lloret RM. Computed tomographic screening of pulmonary arterial hypertension in candidates for lung transplantation. InTransplantation proceedings 2007 Sep 1 (Vol. 39, No. 7, pp. 2405-2408). Elsevier.
43. Sanz J, Kariisa M, Dellegrottaglie S, et al. Evaluation of pulmonary artery patients with pulmonary hypertension: comparison with right heart stiffness in pulmonary hypertension with cardiac magnetic resonance. catheterization and echocardiography. J Magn Reson Imaging 2009;30: JACC Cardiovasc Imaging 2009;2:286-95. 973-80.
44. Hsu VM, Moreyra AE, Wilson AC, Shinnar M, Shindler DM, Wilson JE, Desai A, Seibold JR. Assessment of pulmonary arterial hypertension in patients with systemic sclerosis: comparison of noninvasive tests with results of right-heart catheterization. J Rheumatol 2008; 35:458–465.
45. Laaban JP, Diebold B, Zelinski R, et al. Noninvasive estimation of systolic pulmonary artery pressure using Doppler echocardiography in patients with chronic obstructive pulmonary disease. Chest 1989;96:1258e62.
46. Matsuyama W, Ohkubo R, Michizono K, et al. Usefulness of transcutaneous Doppler jugular venous echo to predict pulmonary hypertension in COPD patients. Eur Respir J 2001;17:1128e31.
47. Sertogullarindan B, Bora A, Yavuz A, Ekin S, Gunbatar H, Arisoy A, Avcu S, Ozbay B. Utility of computed tomography in assessment of pulmonary hypertension secondary to biomass smoke exposure. Medical science monitor: international medical journal of experimental and clinical research. 2014;20:368.
48. Tan RT, Kuzo R, Goodman LR, Siegel R, Haasler GB, Presberg KW. Utility of CT scan evaluation for predicting pulmonary hypertension in patients with parenchymal lung disease. Medical College of Wisconsin Lung Transplant Group. Chest 1998;113:1250-6.
49. Kim WR, Krowka MJ, Plevak DJ, et al. Accuracy of Doppler echocardiography in the assessment of pulmonary hypertension in liver transplant candidates. Liver Transpl 2000;6:453e8.
50. Saner FH, Nadalin S, Pavlakovic G, Gu Y, Olde Damink SW, Gensicke J, Fruhauf NR, Paul A, Radtke A, Sotiropoulos GC, Malagó M, Broelsch CE. Portopulmonary hypertension in the early phase following liver transplantation. Transplantation 2006; 82:887–891.
51. Hua R, Sun YW, Wu ZY, Cheng W, Xu Q, Cao H, Luo M. Role of 2-dimensional Doppler echo-cardiography in screening portopulmonary hypertension in portal hypertension patients. HBPD INT 2009; 8:157–161.