Supplementary list of included studies

1. Hundley WG, Kizilbash AM, Afridi I, Franco F, Peshock RM, Grayburn PA. Effect of contrast enhancement on transthoracic echocardiographic assessment of left ventricular regional wall motion. Am J Cardiol 1999;84:1365-8, A8-9.

2. Schmidt MA, Ohazama CJ, Agyeman KO et al. Real-time three-dimensional echocardiography for measurement of left ventricular volumes. Am J Cardiol 1999;84:1434-9.

3. Chuang ML, Beaudin RA, Riley MF et al. Three-dimensional echocardiographic measurement of left ventricular mass: comparison with magnetic resonance imaging and two-dimensional echocardiographic determinations in man. Int J Card Imaging 2000;16:347-57.

4. Qin JX, Jones M, Shiota T, Greenberg NL, Tsujino H. Validation of Real-Time Three-Dimensional Echocardiography for Quantifying Left Ventricular Volumes in the Presence of a Left Ventricular Aneurysm: In Vitro and In Vivo Studies. J Am Coll Cardiol 2000;36:900-7.

5. Chuang ML, Danias PG, Riley MF, Hibberd MG, Manning WJ, Douglas PS. Effect of increased body mass index on accuracy of two-dimensional echocardiography for measurement of left ventricular volume, ejection fraction, and mass. Am J Cardiol 2001;87:371-4, A10.

6. Schalla S, Nagel E, Lehmkuhl H et al. Comparison of magnetic resonance real-time imaging of left ventricular function with conventional magnetic resonance imaging and echocardiography. Am J Cardiol 2001;87:95-9.

7. Mannaerts HFJ, Van Der Heide JA, Kamp O et al. Quantification of left ventricular volumes and ejection fraction using freehand transthoracic three-dimensional echocardiography: comparison with magnetic resonance imaging. J Am Soc Echocardiogr 2003;16:101-9.

8. Zeidan Z, Erbel R, Barkhausen J, Hunold P, Bartel T, Buck T. Analysis of global systolic and diastolic left ventricular performance using volume-time curves by real-time three-dimensional echocardiography. J Am Soc Echocardiogr 2003;16:29-37.

9. Jenkins C, Bricknell K, Hanekom L, Marwick TH. Reproducibility and accuracy of echocardiographic measurements of left ventricular parameters using real-time three-dimensional echocardiography. J Am Coll Cardiol 2004;44:878-86.

10. Malm S, Frigstad S, Sagberg E, Larsson H, Skjaerpe T. Accurate and reproducible measurement of left ventricular volume and ejection fraction by contrast echocardiography: a comparison with magnetic resonance imaging. J Am Coll Cardiol 2004;44:1030-5.

11. Caiani EG, Corsi C, Zamorano J et al. Improved semiautomated quantification of left ventricular volumes and ejection fraction using 3-dimensional echocardiography with a full matrix-array transducer: comparison with magnetic resonance imaging. J Am Soc Echocardiogr 2005;18:779-88.

12. Corsi C, Lang RM, Veronesi F et al. Volumetric quantification of global and regional left ventricular function from real-time three-dimensional echocardiographic images. Circulation 2005;112:1161-70.

13. Lim TK, Burden L, Janardhanan R et al. Improved accuracy of low-power contrast echocardiography for the assessment of left ventricular remodeling compared with unenhanced harmonic echocardiography after acute myocardial infarction: comparison with cardiovascular magnetic resonance imaging. J Am Soc Echocardiogr 2005;18:1203-7.

14. Wang Y, Tagil K, Ripa RS et al. Effect of mobilization of bone marrow stem cells by granulocyte colony stimulating factor on clinical symptoms, left ventricular perfusion and function in patients with severe chronic ischemic heart disease. Int J Cardiol 2005;100:477-83.

15. Chan J, Jenkins C, Khafagi F, Du L, Marwick TH. What is the optimal clinical technique for measurement of left ventricular volume after myocardial infarction? A comparative study of 3-dimensional echocardiography, single photon emission computed tomography, and cardiac magnetic resonance imaging. J Am Soc Echocardiogr 2006;19:192-201.

16. Dewey M, Muller M, Eddicks S et al. Evaluation of global and regional left ventricular function with 16-slice computed tomography, biplane cineventriculography, and two-dimensional transthoracic echocardiography: comparison with magnetic resonance imaging. J Am Coll Cardiol 2006;48:2034-44.

17. Jenkins C, Chan J, Hanekom L, Marwick TH. Accuracy and feasibility of online 3-dimensional echocardiography for measurement of left ventricular parameters. J Am Soc Echocardiogr 2006;19:1119-28.

18. Krenning BJ, Voormolen MM, van Geuns R-J et al. Rapid and accurate measurement of left ventricular function with a new second-harmonic fast-rotating transducer and semi-automated border detection. Echocardiography 2006;23:447-54.

19. Liew CK, Annuar R, Ong TK et al. Assessment of left ventricular ejection fraction: comparison of two dimensional echocardiography,cardiac magnetic resonance imaging and 64-row multi-detector computed tomography. J Geriatr Cardiol 2006;3:2-8.

20. Malm S, Frigstad S, Sagberg E, Steen PA, Skjarpe T. Real-time simultaneous triplane contrast echocardiography gives rapid, accurate, and reproducible assessment of left ventricular volumes and ejection fraction: a comparison with magnetic resonance imaging. J Am Soc Echocardiogr 2006;19:1494-501.

21. Nigri M, Rochitte CE, Tarasoutchi F et al. [Symptomatic severe chronic aortic valve disease: a comparative study of cardiac magnetic resonance imaging and echocardiography]. Arq Bras Cardiol 2006;86:145-9.

22. Nikitin NP, Constantin C, Loh PH et al. New generation 3-dimensional echocardiography for left ventricular volumetric and functional measurements: comparison with cardiac magnetic resonance. Eur J Echocardiogr 2006;7:365-72.

23. Sugeng L, Mor-Avi V, Weinert L et al. Quantitative assessment of left ventricular size and function: side-by-side comparison of real-time three-dimensional

echocardiography and computed tomography with magnetic resonance reference. Circulation 2006;114:654-61.

24. Brodoefel H, Kramer U, Reimann A et al. Dual-source CT with improved temporal resolution in assessment of left ventricular function: a pilot study. AJR American journal of roentgenology 2007;189:1064-70.

25. Demir H, Tan YZ, Kozdag G et al. Comparison of gated SPECT, echocardiography and cardiac magnetic resonance imaging for the assessment of left ventricular ejection fraction and volumes. Ann Saudi Med 2007;27:415-20.

26. Giakoumis A, Berdoukas V, Gotsis E, Aessopos A. Comparison of echocardiographic (US) volumetry with cardiac magnetic resonance (CMR) imaging in transfusion dependent thalassemia major (TM). Cardiovasc 2007;5:24.

27. Jenkins C, Chan J, Bricknell K, Strudwick M, Marwick TH. Reproducibility of right ventricular volumes and ejection fraction using real-time three-dimensional echocardiography: comparison with cardiac MRI. Chest 2007;131:1844-51.

28. Jenkins C, Leano R, Chan J, Marwick TH. Reconstructed versus real-time 3-dimensional echocardiography: comparison with magnetic resonance imaging. J Am Soc Echocardiogr 2007;20:862-8.

29. Krenning BJ, Kirschbaum SW, Soliman OII et al. Comparison of contrast agent-enhanced versus non-contrast agent-enhanced real-time three-dimensional echocardiography for analysis of left ventricular systolic function. Am J Cardiol 2007;100:1485-9.

30. Qi X, Cogar B, Hsiung MC et al. Live/real time three-dimensional transthoracic echocardiographic assessment of left ventricular volumes, ejection fraction, and mass compared with magnetic resonance imaging. Echocardiography 2007;24:166-73.

31. Schlosser T, Mohrs OK, Magedanz A, Voigtlander T, Schmermund A, Barkhausen J. Assessment of left ventricular function and mass in patients undergoing computed tomography (CT) coronary angiography using 64-detector-row CT: comparison to magnetic resonance imaging. Acta radiologica 2007;48:30-5.

32. Soliman OII, Krenning BJ, Geleijnse ML et al. Quantification of left ventricular volumes and function in patients with cardiomyopathies by real-time three-dimensional echocardiography: a head-to-head comparison between two different semiautomated endocardial border detection algorithms. J Am Soc Echocardiogr 2007;20:1042-9.

33. Bastarrika G, Arraiza M, De Cecco CN, Mastrobuoni S, Ubilla M, Rabago G. Quantification of left ventricular function and mass in heart transplant recipients using dual-source CT and MRI: initial clinical experience. European radiology 2008;18:1784-90.

34. Busch S, Johnson TR, Wintersperger BJ et al. Quantitative assessment of left ventricular function with dual-source CT in comparison to cardiac magnetic resonance imaging: initial findings. European radiology 2008;18:570-5.

35. Chukwu EO, Barasch E, Mihalatos DG et al. Relative importance of errors in left ventricular quantitation by two-dimensional echocardiography: insights from three-

dimensional echocardiography and cardiac magnetic resonance imaging. J Am Soc Echocardiogr 2008;21:990-7.

36. Leonardi B, Margossian R, Colan SD, Powell AJ. Relationship of magnetic resonance imaging estimation of myocardial iron to left ventricular systolic and diastolic function in thalassemia. JACC Cardiovasc Imaging 2008;1:572-8.

37. Mor-Avi V, Jenkins C, Kuhl HP et al. Real-time 3-dimensional echocardiographic quantification of left ventricular volumes: multicenter study for validation with magnetic resonance imaging and investigation of sources of error. JACC Cardiovasc Imaging 2008;1:413-23.

38. Pouleur AC, le Polain de Waroux JB, Pasquet A et al. Assessment of left ventricular mass and volumes by three-dimensional echocardiography in patients with or without wall motion abnormalities: comparison against cine magnetic resonance imaging. Heart 2008;94:1050-7.

39. Puesken M, Fischbach R, Wenker M et al. Global left-ventricular function assessment using dual-source multidetector CT: effect of improved temporal resolution on ventricular volume measurement. European radiology 2008;18:2087-94.

40. Rutten FH, Vonken EJ, Cramer MJ et al. Cardiovascular magnetic resonance imaging to identify left-sided chronic heart failure in stable patients with chronic obstructive pulmonary disease. Am Heart J 2008;156:506-12.

41. Soliman OII, Kirschbaum SW, van Dalen BM et al. Accuracy and reproducibility of quantitation of left ventricular function by real-time three-dimensional echocardiography versus cardiac magnetic resonance. Am J Cardiol 2008;102:778-83.

42. Wu YW, Tadamura E, Kanao S et al. Left ventricular functional analysis using 64-slice multidetector row computed tomography: comparison with left ventriculography and cardiovascular magnetic resonance. Cardiology 2008;109:135-42.

43. Akram K, Anderson HD, Voros S. Quantification of left ventricular parameters obtained by automated software for 64-slice multidetector computed tomography and comparison with magnetic resonance imaging. Cardiovascular and interventional radiology 2009;32:1154-60.

44. Garcia-Alvarez A, Sitges M, Delgado V et al. Relation of plasma brain natriuretic peptide levels on admission for ST-elevation myocardial infarction to left ventricular end-diastolic volume six months later measured by both echocardiography and cardiac magnetic resonance. Am J Cardiol 2009;104:878-82.

45. Gardner BI, Bingham SE, Allen MR, Blatter DD, Anderson JL. Cardiac magnetic resonance versus transthoracic echocardiography for the assessment of cardiac volumes and regional function after myocardial infarction: an intrasubject comparison using simultaneous intrasubject recordings. Cardiovasc 2009;7:38.

46. Gjesdal O, Vartdal T, Hopp E et al. Left ventricle longitudinal deformation assessment by mitral annulus displacement or global longitudinal strain in chronic ischemic heart disease: are they interchangeable? J Am Soc Echocardiogr 2009;22:823-30.

47. Guo YK, Yang ZG, Ning G et al. Sixty-four-slice multidetector computed tomography for preoperative evaluation of left ventricular function and mass in patients with mitral regurgitation: comparison with magnetic resonance imaging and echocardiography. European radiology 2009;19:2107-16.

48. Jenkins C, Moir S, Chan J, Rakhit D, Haluska B, Marwick TH. Left ventricular volume measurement with echocardiography: a comparison of left ventricular opacification, three-dimensional echocardiography, or both with magnetic resonance imaging. Eur Heart J 2009;30:98-106.

49. Nowosielski M, Schocke M, Mayr A et al. Comparison of wall thickening and ejection fraction by cardiovascular magnetic resonance and echocardiography in acute myocardial infarction. J Cardiovasc Magn Reson 2009;11:22.

50. Sarwar A, Shapiro MD, Nasir K et al. Evaluating global and regional left ventricular function in patients with reperfused acute myocardial infarction by 64-slice multidetector CT: a comparison to magnetic resonance imaging. Journal of cardiovascular computed tomography 2009;3:170-7.

51. Abbate A, Kontos MC, Grizzard JD et al. Interleukin-1 blockade with anakinra to prevent adverse cardiac remodeling after acute myocardial infarction (Virginia Commonwealth University Anakinra Remodeling Trial [VCU-ART] Pilot study). Am J Cardiol 2010;105:1371-1377.e1.

52. Claver E, Leta R, Pujadas S, Hidalgo A, Carreras F, Pons-Llado G. [Evaluation of the left ventricle with three-dimensional echocardiography: comparison with cardiac magnetic resonance]. Radiologia 2010;52:534-40.

53. Palumbo A, Maffei E, Martini C et al. Functional parameters of the left ventricle: comparison of cardiac MRI and cardiac CT in a large population. La Radiologia medica 2010;115:702-13.

54. Whalley G, Gabriel R, Kerr A et al. Abstract 19347: Systematic Differences in Left Ventricular Volumes Measured by Cardiac MR and Biplane Echocardiography in Moderate-Severe Mitral Regurgitation. Circulation Journal 2010;122.

55. de Jonge GJ, van der Vleuten PA, Overbosch J et al. Semi-automatic measurement of left ventricular function on dual source computed tomography using five different software tools in comparison with magnetic resonance imaging. European journal of radiology 2011;80:755-66.

56. Arraiza M, Azcarate PM, De Cecco CN et al. Assessment of left ventricular parameters in orthotopic heart transplant recipients using dual-source CT and contrast-enhanced echocardiography: comparison with MRI. European journal of radiology 2012;81:3282-8.

57. Bak SH, Ko SM, Jeon HJ, Yang HS, Hwang HK, Song MG. Assessment of global left ventricular function with dual-source computed tomography in patients with valvular heart disease. Acta radiologica 2012;53:270-7.

58. Brodoefel H, Tsiflikas I, Kramer U et al. Accuracy of Automated Attenuation-Based 3-Dimensional Segmentation. Tex Heart Inst J 2012;39:36-43.

59. Coon PD, Pollard H, Furlong K, Lang RM, Mor-Avi V. Quantification of left ventricular size and function using contrast-enhanced real-time 3D imaging with power modulation: comparison with cardiac MRI. Ultrasound in medicine & biology 2012;38:1853-8.

60. Fuchs A, Kuhl JT, Lonborg J et al. Automated assessment of heart chamber volumes and function in patients with previous myocardial infarction using multidetector computed tomography. Journal of cardiovascular computed tomography 2012;6:325-34.

61. Greupner J, Zimmermann E, Grohmann A et al. Head-to-head comparison of left ventricular function assessment with 64-row computed tomography, biplane left cineventriculography, and both 2- and 3-dimensional transthoracic echocardiography: comparison with magnetic resonance imaging as the reference standard. J Am Coll Cardiol 2012;59:1897-907.

62. Lee H, Kim SY, Gebregziabher M, Hanna EL, Schoepf UJ. Impact of ventricular contrast medium attenuation on the accuracy of left and right ventricular function analysis at cardiac multi detector-row CT compared with cardiac MRI. Academic radiology 2012;19:395-405.

63. Li C, Lossnitzer D, Katus HA, Buss SJ. Comparison of left ventricular volumes and ejection fraction by monoplane cineventriculography, unenhanced echocardiography and cardiac magnetic resonance imaging. The international journal of cardiovascular imaging 2012;28:1003-10.

64. Maffei E, Messalli G, Martini C et al. Left and right ventricle assessment with Cardiac CT: validation study vs. Cardiac MR. European radiology 2012;22:1041-9.

65. Takx RA, Moscariello A, Schoepf UJ et al. Quantification of left and right ventricular function and myocardial mass: comparison of low-radiation dose 2nd generation dual-source CT and cardiac MRI. European journal of radiology 2012;81:e598-604.