REFERENCES

- 1 Galiuto L, DeMaria AN, del Balzo U, et al. Ischemia-reperfusion injury at the microvascular level: treatment by endothelin A-selective antagonist and evaluation by myocardial contrast echocardiography. *Circulation* 2000;102:3111-6.
- 2 Hansen A, Kumar A, Wolf D, et al. Evaluation of cardioprotective effects of recombinant soluble P-selectin glycoprotein ligand-Ig in myocardial ischemia-reperfusion injury by real-time myocardial contrast echocardiography. *J Am Coll Cardiol* 2004;44:887-91.
- 3 Shimoni S, Frangogiannis NG, Aggeli CJ, et al. Identification of hibernating myocardium with quantitative intravenous myocardial contrast echocardiography: comparison with dobutamine echocardiography and thallium-201 scintigraphy. *Circulation* 2003;107:538-44.
- 4 Korosoglou G, Hansen A, Hoffend J, et al. Comparison of real-time myocardial contrast echocardiography for the assessment of myocardial viability with 18 F-fluorodeoxyglucose positron emission tomography and dobutamine stress echocardiography. *Am J Cardiol* 2004;94:31-7.
- 5 Korosoglou G, Labadze N, Giannitis E, et al. Usefulness of real-time myocardial perfusion imaging to evaluate tissue level reperfusion in patients with non-ST-elevation myocardial infarction. *Am J Cardiol* 2005;95:1033-8.
- 6 Korosoglou G, Labadze N, Hansen A, et al. Usefulness of real-time myocardial perfusion imaging in the evaluation of patients with first time chest pain. *Am J Cardiol* 2004;94:1225-31.
- 7 Korosoglou G, Dubart AE, DaSilva KGC, et al. Real-time myocardial perfusion imaging for pharmacologic stress testing: added value to single-photon emission computed tomography. *Am Heart J* (in press).
- 8 Linka AZ, Sklenar J, Wei K, et al. Assessment of transmural distribution of myocardial perfusion with contrast echocardiography. *Circulation* 1998;98:1912-20.
- 9 Yu EH, Skyba DM, Leong-Poi H, et al. Incremental value of parametric quantitative assessment of myocardial perfusion by triggered low-power myocardial contrast echocardiography. *J Am Coll Cardiol* 2004;43:1807-13.
- 10 Schiller NB, Shah PM, Crawford M, et al. Recommendations for quantification of the left ventricle by two-dimensional echocardiography. *J Am Soc Echocardiogr* 1989;2:358-67.
- 11 Pagano D, Bonser RS, Townend JN, et al. Predictive value of dobutamine echocardiography and positron emission tomography in identifying hibernating myocardium in patients with postischemic heart failure. *Heart* 1998;79:281-8.
- 12 Iwanaga S, Ewing SG, Hussein WK, et al. Changes in contractility and afterload have only slight effects on subendocardial systolic flow impediment. *Am J Physiol* 1995;269:H1202-12.
- 13 Wei K, Jayaweera AR, Firoozan S, et al. Quantification of myocardial blood flow with ultrasound-induced destruction of microbubbles administered as a constant venous infusion. *Circulation* 1998;97:473-83.
- 14 Kramer MS, Feinstein AR. Clinical biostatistics: the biostatistics of concordance. *Clin Pharmacol Ther* 1981;29:111-23.
- 15 Bland JM, Altman DG. Statistical methods for assessing agreement between two methods of clinical measurement. *Lancet*, 1986;i, 307-10.
- 16 Becher H, Burns PN. Contrast agents for echocardiography: principles and instrumentation. In: *Handbook of contrast echocardiography*. Heidelberg: Springer Verlag, 2000:184.
- 17 Murthy TH, Li P, Lovicchio E, et al. Real-time myocardial blood flow imaging in normal human beings with the use of myocardial contrast echocardiography. *J Am Soc Echocardiogr* 2001;14:698-705.
- 18 Bekereditjan R, Hansen A, Filusch A, et al. Cyclic variation of myocardial signal intensity in real-time myocardial perfusion imaging. *J Am Soc Echocardiogr* 2002;15:1425-31.
- 19 Hansen A, Bekereditjan R, Korosoglou G, et al. Fourier phase analysis can be used to objectively analyze real-time myocardial contrast echocardiograms. *Int J Cardiovasc Imaging* 2004;20:241-8.
- 20 Ito H, Maruyama A, Iwakura K, et al. Clinical implications of the 'no reflow' phenomenon: a predictor of complications and left ventricular remodeling in reperfused anterior wall myocardial infarction. *Circulation* 1996;93:223-8.
- 21 Gioia G, Powers J, Heo J, et al. Prognostic value of rest-redistribution tomographic thallium-201 imaging in ischaemic cardiomyopathy. *Am J Cardiol* 1995;75:759-62.
- 22 Schlosser T, Pohl C, Kuntz-Hehner S, et al. Echoscintigraphy: a new imaging modality for the reduction of color blooming and acoustic shadowing in contrast sonography. *Ultrasound Med Biol* 2003;29:985-91.
- 23 Sabia PJ, Powers ER, Jayaweera AR, et al. An association between collateral blood flow and myocardial viability in patients with recent myocardial infarction. *N Engl J Med* 1992;327:1825-31.
- 24 Ragosta M, Camarano G, Kaul S, et al. Microvascular integrity indicates myocellular viability in patients with recent myocardial infarction: new insights using myocardial contrast echocardiography. *Circulation* 1994;89:2562-9.
- 25 Pagley PR, Beller GA, Watson DD, et al. Improved outcome after coronary bypass surgery in patients with ischemic cardiomyopathy and residual myocardial viability. *Circulation* 1997;96:793-800.
- 26 Lindner JR, Villanueva FS, Dent JM, et al. Assessment of resting perfusion with myocardial contrast echocardiography: theoretical and practical considerations. *Am Heart J* 2000;139:231-40.

IMAGES IN CARDIOLOGY

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Post-infarct rupture of the membranous ventricular septum complicated by left atrial dissection

A 56-year old man developed a cardiogenic shock 24 hours after a postero-inferior myocardial infarction. The coronary angiogram revealed a dominant right coronary artery occluded at the origin of its third segment. Transoesophageal echocardiography showed a complex basal ventricular septal rupture at the level of the membranous septum (panels A and B). The rupture was accompanied by an extensive haemorrhage into the muscular ventricular

septum and into the interatrial septum, creating a left atrial dissection (panel C).

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(A, B) Two dimensional transoesophageal echocardiography showing rupture of the membranous ventricular septum with extensive haemorrhage into its muscular portion and the interatrial septum. (C) Four chamber view with special emphasis on the left atrial wall dissection. LA, left atrium; LV, left ventricle; RA, right atrium; RV, right ventricle; VSR, ventricular septal rupture.