

## References

1. Byul A, Tsefal P. DiaSoft,2002.608 p (in Russ).
2. Kilkisna otsinka ekhokardiohrafichnykh pokaznykiv porozhnyn sertsya. Rekomendatsiyi robochoyi hrupy z funktsionalnoyi diahnostryky Asotsiatsiyi kardiologiv Ukrayiny ta Vseukrayinskoyi asotsiatsiyi fakhivtsiv z ekhokardiohrafii. *Arytmolohiya – Arrhythmology* 2012;4:44–71 (in Ukr).
3. Kovalenko VM, Nesukay OH, Danylenko OO, Polenova NS, Titov YeYu. *Ukrayinskyy medychnyy chasopys – Ukrainian medical journal* 2013;2:183–187 (in Ukr).
4. Kovalenko VM, Nesukay OH, Polenova NS, Danylenko O.O, Titov Ye.Yu. *Ukrayinskyi kardiologichnyi zhurnal – Ukrainian journal of cardiology* 2012;6:103–109 (in Ukr).
5. Plehanov AV. SPbGUEF,2010.96 p (in Russ).
6. Revishvili ASh. *Zhurnal Serdechnaya nedostatochnost – Journal of heart failure* 2009;6:349–357 (in Russ).
7. Rekomendatsiyi Asotsiatsiyi kardiologiv Ukrayiny z diahnostryky ta likuvannya klapannykh vad sertsya. *Ukrayinskyy kardiologichnyy zhurnal – Ukrainian journal of cardiology* 2013;1:15–32 (in Ukr).
8. Agricola E, Oppizzi M, Galderisi M, Pisani M, Meris A, Pappone C, Margonato A. Role of regional mechanical dyssynchrony as a determinant of functional mitral regurgitation in patients with left ventricular systolic dysfunction. *Heart* 2006;92(10):1390–1395.
9. Amigoni M, Meris A, Thune JJ. Mitral regurgitation in myocardial infarction complicated by heart failure, left ventricular dysfunction, or both: prognostic significance and relation to ventricular size and function. *Eur. Heart J.* 2007;28(3):326–333.
10. Bursi F, Enriquez-Sarano M, Nkomo VT, Jacobsen SJ, Weston SA, Meverden RA, Roger VL. Heart failure and death after myocardial infarction in the community: the emerging role of mitral regurgitation. *Circulation* 2005;111(3):295–301.
11. Cheng A., Helm R.H., Abraham T.P. Pathophysiological mechanisms underlying ventricular dyssynchrony. *Europace* 2009;11(5):10–14.
12. Esmaeilzadeh M, Alizadeh Sani Z, Sanati H.R, Maleki M, Abkenar Bakhshandeh H. Evaluation of Regional Myocardial Systolic Function in the Early Stage of Acute Myocardial Infarction by Strain Rate Imaging. *Iranian Cardiovascular Research Journal* 2009;3(4):181–190.
13. Gorcsan J, Abraham T, Agler DA, Bax JJ, Derumeaux G, Grimm RA, Martin R, Steinberg JS, Sutton MS, Yu CM. Echocardiography for cardiac resynchronization therapy: recommendations for performance and reporting – a report from the American Society of Echocardiography Dyssynchrony Writing Group endorsed by the Heart Rhythm Society. *J. Am. Soc. Echocardiogr.* 2008;21(3):191–213.
14. Grigioni F, Enriquez-Sarano M, Zehr KJ, Bailey KR, Tajik AJ. Ischemic mitral regurgitation: long-term outcome and prognostic implications with quantitative Doppler assessment. *Circulation* 2001;103(13):1759–1764.

15. Hanley JA, McNeil BJ. A method of comparing area under ROC - curves derived from the same cases. *Radiology* 1983;148(3):839–843.
16. Kanzaki H, Bazaz R, Schwartzman D, Dohi K, Sade LE, Gorcsan J. A mechanism for immediate reduction in mitral regurgitation after cardiac resynchronization therapy: insights from mechanical activation strain mapping. *J. Am. Coll. Cardiol.* 2004;44(8):1619–1625.
17. Kaufman CL, Kaiser DR, Burns KV, Kelly AS, Bank AJ. Multi-plane mechanical dyssynchrony in cardiac resynchronization therapy. *Clin. Cardiol.* 2010;33(2):31–38.
18. Lancellotti P, Moura L, Pierard LA, Agricola E, Popescu BA, Tribouilloy C, Hagendorff A, Monin JL, Badano L, Zamorano JL. European Association of Echocardiography recommendations for the assessment of valvular regurgitation. Part 2: mitral and tricuspid regurgitation (native valve disease). *Eur. J. Echocardiogr.* 2010;11(4):307–332.
19. Lancellotti P, Tribouilloy C, Hagendorff A, Popescu BA, Edvardsen T, Pierard LA, Badano L, Zamorano JL. Recommendations for the echocardiographic assessment of native valvular regurgitation: an executive summary from the European Association of Cardiovascular Imaging. *Eur. Heart J. Cardiovasc. Imaging* 2013;14(7):611–644.
20. Lang RM, Bierig M, Devereux RB, Flachskampf FA, Foster E, Pellikka PA, Picard MH, Roman MJ, Seward J, Shanewise J, Solomon S, Spencer KT, St John Sutton M, Stewart W. Recommendations for chamber quantification. *Eur. J. Echocardiogr.* 2006;7:79–108.
21. Liang YJ, Zhang Q, Fang F, Lee AP, Liu M, Yan BP, Lam YY, Chan GC, Yu CM. Incremental value of global systolic dyssynchrony in determining the occurrence of functional mitral regurgitation in patients with left ventricular systolic dysfunction. *Eur. Heart J.* 2013;34(10):767–774.
22. Lim P, Buakhamsri A, Popovic ZB, Greenberg NL, Patel D, Thomas JD, Grimm RA. Longitudinal strain delay index by speckle tracking imaging: a new marker of response to cardiac resynchronization therapy. *Circulation* 2008;118(11):1130–1137.
23. Mollema SA, Liem SS, Suffoletto MS, Bleeker GB, van der Hoeven BL, van de Veire NR, Boersma E, Holman ER, van der Wall EE, Schalij MJ, Gorcsan J, Bax JJ. Left ventricular dyssynchrony acutely after myocardial infarction predicts left ventricular remodeling. *J. Am. Coll. Cardiol.* 2007;50(16):1532–1540.
24. Mor-Avi V, Lang RM, Badano LP, Belohlavek M, Cardim NM, Derumeaux G, Galderisi M, Marwick T, Nagueh SF, Sengupta PP, Sicari R, Smiseth OA, Smulevitz B, Takeuchi M, Thomas JD, Vannan M, Voigt JU, Zamorano JL. Current and evolving echocardiographic techniques for the quantitative evaluation of cardiac mechanics: ASE/EAE consensus statement on methodology and indications endorsed by the Japanese Society of Echocardiography. *Eur. J. Echocardiogr.* 2011;12(3):167–205.
25. Nucifora G, Bertini M, Ajmone Marsan N, Scholte AJ, Siebelink HM, Holman ER, Schalij MJ, van der Wall EE, Bax JJ, Delgado V. Temporal evolution of left ventricular dyssynchrony after myocardial infarction: relation with changes in left ventricular systolic function. *Eur. Heart J. Cardiovasc. Imaging* 2012;13(12):1041–1046.
26. Nucifora G, Bertini M, Marsan NA, Delgado V, Scholte AJ, Ng AC, van Werkhoven JM, Siebelink HM, Holman ER, Schalij MJ, van der Wall EE, Bax JJ. Impact of left ventricular dyssynchrony early on left ventricular function after first acute myocardial infarction. *Am. J. Cardiol.* 2010;105(3):306–311.

27. Ng AC, Tran da T, Allman C, Vidaic J, Leung DY. Prognostic implications of left ventricular dyssynchrony early after non-ST elevation myocardial infarction without congestive heart failure. *Eur. Heart J.* 2010;31(3):298–308.
28. Shin SH, Hung CL, Uno H, Hassanein AH, Verma A, Bourgoun M, Køber L, Ghali JK, Velazquez EJ, Califf RM, Pfeffer MA, Solomon SD. Mechanical dyssynchrony after myocardial infarction in patients with left ventricular dysfunction, heart failure or both. *Circulation* 2010;121(9):1096–1103.
29. Suffoletto MS, Dohi K, Cannesson M, Saba S, Gorcsan J. Novel speckle-tracking radial strain from routine black-and-white echocardiographic images to quantify dyssynchrony and predict response to cardiac resynchronization therapy. *Circulation* 2006;113(7):960–968.
30. Tigen K, Karaahmet T, Dundar C, Guler A, Cevik C, Basaran O, Kirma C, Basaran Y. The importance of papillary muscle dyssynchrony in predicting the severity of functional mitral regurgitation in patients with non-ischaemic dilated cardiomyopathy: a two-dimensional speckle-tracking echocardiography study. *Eur. J. Echocardiogr.* 2010;11(8):671–676.
31. Ypenburg C, Lancellotti P, Tops LF, Bleeker GB, Holman ER, Piérard LA, Schalij MJ, Bax JJ. Acute effects of initiation and withdrawal of cardiac resynchronization therapy on papillary muscle dyssynchrony and mitral regurgitation. *J. Am. Coll. Cardiol.* 2007;50(21):2071–2077.
32. Zhang Y, Chan AK, Yu CM, Lam WW, Yip GW, Fung WH, So NM, Wang M, Sanderson JE. Left ventricular systolic asynchrony after acute myocardial infarction in patients with narrow QRS complexes. *Am. Heart J.* 2005;149(3):497–503.