Author: Janssen, Jasper
Title: Advances in quantitative coronary and vascular angiography
Date: 2012-10-11

References

[1] Heart Disease and Stroke Statistics - 2005 Update. Dallas, Tex.;. Available from: http://www.americanheart.org.

[2] European Heart Network;. Available from: http://www.ehnheart.org.

[3] World Health Organization;. Available from: http://www.who.int.

[4] Bruschke AVG, Sheldon WC, Shirey EK, Proudfit WL. A Half Century of Selective Coronary Arteriography. J Am Coll Cardiol. 2009;54(23):2139–2144.

[5] Rontgen WC. On a new kind of rays. Nature. 1896;53(41):274–277.

[6] Rontgen WC. On a new kind of rays. Science (New York, NY). 1896;3(59):227–231.

[7] Sones FMJ, Shirey EK. Cine coronary arteriography. Modern concepts of cardiovascular disease. 1962;31:735–738.

[8] Castellanos A GA Pereiras R. La angio-cardiografia radio-opaca. Arch Soc de Estudios Clin De Habana. 1937;31:523–596.

[9] Arnulf G, Buffard P. Die Arteriographie der Koronarien mittels Azetylcholin. Fortschr Rontgenstr. 1960;92(02):115–129.

[10] Judkins MP. Selective Coronary Arteriography: A Percutaneous Transfemoral Technic. Radiology. 1967;89(5):815–824.

[11] Amplatz K, Anderson R. Angiographic appearance of myocardial bridging of the coronary artery. Invest Radiol. 1968;3(3):213–215.

[12] Ludwig JW, Bruschke AV. Improvement of Diagnostic Accuracy of Coronary Arteriogram By Unconventional Projections. Circulation. 1973;48(4):193–193.

[13] Glagov S, Weisenberg E, Zarins CK, Stankunavicius R, Kolettis GJ. Compensatory Enlargement of Human Atherosclerotic Coronary-arteries. N Engl J Med. 1987;316(22):1371–1375.

[14] Achenbach S. Cardiac CT: state of the art for the detection of coronary arterial stenosis. Journal of cardiovascular computed tomography. 2007;1(1):3–20.

[15] Schuijf JD, Delgado V, van Werkhoven JM, de Graaf FR, van Velzen JE, Boogers MM, et al. Novel clinical applications of state-of-the-art multi-slice computed tomography. Int J Cardiovasc Imaging. 2009;25:241–254.

[16] Leber AW, Knez A, von Ziegler F, Becker A, Nikolaou K, Paul S, et al. Quantification of obstructive and nonobstructive coronary lesions by 64-slice computed tomography - A comparative study with quantitative coronary angiography and intravascular ultrasound. J Am Coll Cardiol. 2005;46(1):147–154.

[17] Leber AW, Becker A, Knez A, von Ziegler F, Sirol M, Nikolaou K, et al. Accuracy of 64-slice computed tomography to classify and quantify plaque volumes in the proximal coronary system - A comparative study using intravascular ultrasound. J Am Coll Cardiol. 2006;47(3):672–677.

[18] Otsuka M, Bruining N, Van Pelt NC, Mollet NR, Ligthart JMR, Vourvouri E, et al. Quantification of coronary plaque by 64-slice computed tomography: A comparison with quantitative intracoronary ultrasound. Invest Radiol. 2008;43(5):314–321.

[19] Marquering HA, Dijkstra J, de Koning PJH, Stoel BC, Reiber JHC. Towards quantitative analysis of coronary CTA. Int J Cardiovasc Imaging. 2005;21(1):73–84.

[20] Bruining N, Roelandt JRTC, Palumbo A, La Grutta L, Cademartiri F, de Feijter PJ, et al. Reproducible coronary plaque quantification by multislice computed tomography. Cathet Cardiovasc Interv. 2007;69(6):857–865.

[21] Kopp AF, Schroeder S, Baumbach A, Kuettner A, Georg C, Ohnesorge B, et al. Non-invasive characterisation of coronary lesion morphology and composition by multislice CT: first results in comparison with intracoronary ultrasound. Eur Radiol. 2001;11(9):1607–1611.

[22] Leber AW, Knez A, Becker A, Becker C, von Ziegler F, Nikolaou K, et al. Accuracy of multidetector spiral computed tomography in identifying and differentiating the composition of coronary atherosclerotic plaques - A comparative study with intracoronary ultrasound. J Am Coll Cardiol. 2004;43(7):1241–1247.

[23] Schroeder S, Kopp AF, Baumbach A, Meisner C, Kuettner A, Georg C, et al. Noninvasive detection and evaluation of atherosclerotic coronary plaques with multislice computed tomography. J Am Coll Cardiol. 2001;37(5):1430–1435.

[24] Kim TH, Hur J, Kim SJ, Kim HS, Choi BW, Choe KO, et al. Two-phase reconstruction for the assessment of left ventricular volume and function using retrospective ECG-gated MDCT: Comparison with echocardiography. American Journal of Roentgenology. 2005;185(2):319–325.

[25] Henneman MM, Schuijf JD, Jukema JW, Holman ER, Lamb HJ, de Roos A, et al. Assessment of global and regional left ventricular function and volumes with 64-slice MSCT: A comparison with 2D echocardiography. J Nucl Cardiol. 2006;13(4):480–487.

[26] Wua YW, Tadamura E, Yamamuro M, Kanao S, Okayama S, Ozasa N, et al. Estimation of global and regional cardiac function using 64-slice computed tomography: A comparison study with echocardiography, gated-SPECT and cardiovascular magnetic resonance. Int J Cardiol. 2008;128(1):69–76.

[27] Jassal DS, Shapiro MD, Neilan TG, Chaithiraphan V, Ferencik M, Teague SD, et al. 64-slice multidetector computed tomography (MDCT) for detection of aortic regurgitation and quantification of severity. Invest Radiol. 2007;42(7):507–512.

[28] Messika-Zeitoun D, Serfaty JM, Laissy JP, Berhili M, Brochet E, Iung B, et al. Assessment of the mitral valve area in patients with mitral stenosis by multislice computed tomography. J Am Coll Cardiol. 2006;48(2):411–413.

[29] Pouleur AC, de Waroux JB, Pasquet A, Vanoverschelde JLJ, Gerber BL. Aortic valve area assessment: Multidetector CT compared with cine MR imaging and transthoracic and transesophageal echocardiography. Radiology. 2007;244(3):745–754.

[30] de Koning PJH, Schaap JA, Janssen JP, Westenberg JJM, van der Geest RJ, Reiber JHC. Automated segmentation and analysis of vascular structures in magnetic resonance angiographic images. Magn Reson Med. 2003;50(6):1189–1198.

[31] Kim DY, Park JW. Computerized quantification of carotid artery stenosis using MRA axial images. Magn Reson Imaging. 2004;22(3):353–359.

[32] Saam T, Ferguson MS, Yarnykh VL, Takaya N, Xu D, Polissar NL, et al. Quantitative evaluation of carotid plaque composition by in vivo MRI. Arteriosclerosis Thrombosis and Vascular Biology. 2005;25(1):234–239.

[33] Adame IM, van der Geest RJ, Wasserman BA, Mohamed MA, Reiber JHC, Lelieveldt BPF. Automatic segmentation and plaque characterization in atherosclerotic carotid artery MR images. Magnetic Resonance Materials In Physics Biology and Medicine. 2004;16(5):227–234.

[34] Kim WY, Stuber M, Bornert P, Kissinger KV, Manning WJ, Botnar RM. Three-dimensional black-blood cardiac magnetic resonance coronary vessel wall imaging detects positive arterial remodeling in patients with nonsignificant coronary artery disease. Circulation. 2002;106(3):296–299.

[35] Adame IM, de Koning PJH, Lelieveldt BPF, Wasserman BA, Reiber JHC, van der Geest RJ. An integrated automated analysis method for quantifying vessel stenosis and plaque burden from carotid MRI images - Combined postprocessing of MRA and vessel wall MR. Stroke. 2006;37(8):2162–2164.

[36] Reiber JHC, Serruys PW, Kooijman CJ, Wijns W, Slager CJ, Gerbrands JJ, et al. Assessment of Short-term, Medium-term, and Long-term Variations In Arterial Dimensions From Computer-assisted Quantitation of Coronary Cineangiograms. Circulation. 1985;71(2):280–288.

[37] Reiber JHC, Serruys PW. Quantitative coronary arteriography. Dordrecht: Kluwer Academic Publishers; 1991.

[38] Reiber JHC, van der Zwet PMJ, Land CDv. Quantitative coronary arteriography: equipment and technical requirements. In: Reiber JHC, Serruys PW, editors. Advances in Quantitative coronary arteriography. Dordrecht: Kluwer Academic Publishers; 1992. p. 75–111.

[39] Reiber JHC, van der Zwet PMJ, Koning G, Vonland CD, Vanmeurs B, Gerbrands JJ, et al. Accuracy and Precision of Quantitative Digital Coronary Arteriography - Observer-term, Short-term, and Medium-term Variabilities. Cathet Cardiovasc Diagn. 1993;28(3):187–198.

[40] van der Zwet PMJ, von Land CD, Loois G, Gerbrands JJ, Reiber JHC. An on-line system for the quantitative analysis of coronary arterial segments. In: Proceedings of Computers in Cardiology; 1989. p. 157–160.

[41] Marcus ML, Wilson RF, White CW. Methods of Measurement of Myocardial Blood-flow In Patients - A Critical-review. Circulation. 1987;76(2):245–253.

[42] Hoffman JIE. Maximal Coronary Flow and the Concept of Coronary Vascular Reserve. Circulation. 1984;70(2):153–159.

[43] Pijls NHJ, Vanson JAM, Kirkeeide RL, Debruyne B, Gould KL. Experimental Basis of Determining Maximum Coronary, Myocardial, and Collateral Blood-flow By Pressure Measurements For Assessing Functional Stenosis Severity Before and After Percutaneous Transluminal Coronary Angioplasty. Circulation. 1993;87(4):1354–1367.

[44] Debruyne B, Baudhuin T, Melin JA, Pijls NHJ, Sys SU, Bol A, et al. Coronary Flow Reserve Calculated From Pressure Measurements In Humans - Validation With Positron Emission Tomography. Circulation. 1994;89(3):1013–1022.

[45] Pijls NHJ, van Gelder B, van der Voort P, Peels K, Bracke FALE, Bonnier HJRM, et al. Fractional Flow Reserve - A Useful Index To Evaluate the Influence of An Epicardial Coronary Stenosis On Myocardial Blood-flow. Circulation. 1995;92(11):3183–3193.

[46] Pijls NHJ, de Bruyne B, Peels K, van der Voort PH, Bonnier HJRM, Bartunek J, et al. Measurement of fractional flow reserve to assess the functional severity of coronary-artery stenoses. N Engl J Med. 1996;334(26):1703–1708.

[47] Beauman GJ, Reiber JHC, Koning G, van Houdt RCM, Vogel RA. Angiographic core laboratory analyses of arterial phantom images: Comparative evaluations of accuracy and precision. In: Reiber JHC, Serruys PW, editors. Progress in Quantitative Coronary Arteriography. Dordrecht: Kluwer Academic Publishers; 1994. p. 87–104.

[48] Tuinenburg JC, Koning G, Hekking E, Desjardins C, Harel F, Bilodeau L, et al. One core laboratory at two international sites, is that feasible? An inter-core laboratory and intra-observer variability study. Cathet Cardiovasc Interv. 2002;56(3):333–340.

[49] Greenspan H, Laifenfeld M, Einav S, Barnea O. Evaluation of center-line extraction algorithms in quantitative coronary angiography. IEEE Trans Med Imaging. 2001;20(9):928–941.

[50] van der Zwet PMJ, Reiber JHC. A New Approach For the Quantification of Complex Lesion Morphology - the Gradient Field Transform - Basic Principles and Validation Results. J Am Coll Cardiol. 1994;24(1):216–224.

[51] Eichel PH, Delp EJ, Koral K, Buda AJ. A Method For A Fully-automatic Definition of Coronary Arterial Edges From Cineangiograms. IEEE Trans Med Imaging. 1988;7(4):313–320.

[52] Sun Y. Automated identification of vessel contours in coronary arteriograms by an adaptive tracking algorithm. IEEE Trans Med Imaging. 1989;8(1):78–88.

[53] Reiber JH, Kooijman CJ, Slager CJ, Gerbrands JJ, Schuurbiers JC, Den Boer A, et al. Coronary artery dimensions from cineangiograms methodology and validation of a computer-assisted analysis procedure. IEEE Trans Med Imaging. 1984;3(3):131–141.

[54] van der Zwet PMJ, Reiber JHC. A new algorithm to detect irregular coronary boundaries: the gradient field transform. In: Proceedings of Computers in Cardiology; 1992. p. 107 –110.

[55] Sonka M, Winniford MD, Collins SM. Robust Simultaneous Detection of Coronary Borders In Complex Images. IEEE Trans Med Imaging. 1995;14(1):151–161.

[56] Sonka M, Reddy GK, Winniford MD, Collins SM. Adaptive approach to accurate analysis of small-diameter vessels in cineangiograms. IEEE Trans Med Imaging. 1997;16(1):87–95.

[57] Chan RC, Karl WC, Lee RS. A new model-based technique for enhanced small-vessel measurements in X-ray cine-angiograms. IEEE Trans Med Imaging. 2000;19(3):243–255.

[58] Reiber JHC, Slager CJ, Schuurbiers JCH, den Boer A, Gerbrands JJ, Troost GJ, et al. Transfer functions of the x ray cine video chain applied to digital processing of coronary cineangiograms. In: Heintzen PH, Brennecke R, editors. Digital Imaging in cardiovascular radiology. Dordrecht: George Thieme Verlag; 1983. p. 89–104.

[59] Miles FP, Nuttall AL. Matched-filter Estimation of Serial Blood-vessel Diameters From Video Images. IEEE Trans Med Imaging. 1993;12(2):147–152.

[60] van der Zwet PMJ, Nettesheim M, Gerbrands JJ, Reiber JHC. Derivation of optimal filters for the detection of coronary arteries. IEEE Trans Med Imaging. 1998;17(1):108–120.

[61] Jalali S, Boyce JF. Determination of Optimal General Edge Detectors By Global Minimization of A Cost Function. Image and Vision Computing. 1995;13(9):683–693.

[62] Petrou M, Kittler J. Optimal Edge Detectors For Ramp Edges. IEEE Trans Pattern Anal Mach Intell. 1991;13(5):483–491.

[63] Canny J. A Computational Approach To Edge-detection. IEEE Trans Pattern Anal Mach Intell. 1986;8(6):679–698.

[64] Figueiredo MAT, Leitao JMN. A Nonsmoothing Approach To the Estimation of Vessel Contours In Angiograms. IEEE Trans Med Imaging. 1995;14(1):162–172.

[65] Kass M, Witkin A, Terzopoulos D. Snakes - Active Contour Models. International Journal of Computer Vision. 1987;1(4):321–331.

[66] Staib LH, Duncan JS. Boundary Finding With Parametrically Deformable Models. IEEE Trans Pattern Anal Mach Intell. 1992;14(11):1061–1075.

[67] Metaxas DN. Physics-Based Deformable Models. Dordrecht: Kluwer Academic Publishers; 1996.

[68] Eviatar H, Somorjai RL. A fast, simple active contour algorithm for biomedical images. Pattern Recognition Letters. 1996;17(9):969–974.

[69] Huang X, Metaxas D, Chen T. MetaMorphs: Deformable shape and texture models. In: Proceedings of IEEE Conf. on Computer Vision and Pattern Recognition. vol. 1; 2004. p. I–496 – I–503 Vol.1.

[70] Klein AK, Lee F, Amini AA. Quantitative coronary angiography with deformable spline models. IEEE Trans Med Imaging. 1997;16(5):468–482.

[71] Klein A, Egglin TK, Pollak JS, Lee F, Amini AA. Identifying vascular features with orientation specific filters and B-spline snakes. In: Proceedings of Computers in Cardiology; 1994. p. 113 –116.

[72] Xu CY, Prince JL. Snakes, shapes, and gradient vector flow. IEEE Trans Image Process. 1998;7(3):359–369.

[73] Xu CY, Prince JL. Generalized gradient vector flow external forces for active contours. Signal Processing. 1998;71(2):131–139.

[74] McInerney T, Terzopoulos D. T-snakes: Topology adaptive snakes. Medical Image Analysis. 2000;4(2):73–91.

[75] Ji LL, Yan H. Attractable snakes based on the greedy algorithm for contour extraction. Pattern Recognition. 2002;35(4):791–806.

[76] Caselles V, Kimmel R, Sapiro G. Geodesic active contours. International Journal of Computer Vision. 1997;22(1):61–79.

[77] Malladi R, Sethian JA, Vemuri BC. Shape Modeling With Front Propagation - A Level Set Approach. IEEE Trans Pattern Anal Mach Intell. 1995;17(2):158–175.

[78] Vese LA, Chan TF. A multiphase level set framework for image segmentation using the Mumford and Shah model. International Journal of Computer Vision. 2002;50(3):271–293.

[79] Paragios N, Deriche R. Geodesic active regions and level set methods for supervised texture segmentation. International Journal of Computer Vision. 2002;46(3):223–247.

[80] Adalsteinsson D, Sethian JA. A Fast Level Set Method For Propagating Interfaces. Journal of Computational Physics. 1995;118(2):269–277.

[81] Sethian JA. A fast marching level set method for monotonically advancing fronts. Proc Natl Acad Sci U S A. 1996;93(4):1591–1595.

[82] Quek FKH, Kirbas C. Vessel extraction in medical images by wave-propagation and traceback. IEEE Trans Med Imaging. 2001;20(2):117–131.

[83] Deschamps T, Cohen LD. Fast extraction of minimal paths in 3D images and applications to virtual endoscopy. Medical Image Analysis. 2001;5(4):281–299.

[84] Janssen JP, Koning G, de Koning PJH, Tuinenburg JC, Reiber JHC. A novel approach for the detection of pathlines in X-ray angiograms: the wavefront propagation algorithm. Int J Cardiovasc Imaging. 2002;18(5):317–324.

[85] Vincent L, Soille P. Watersheds In Digital Spaces - An Efficient Algorithm Based On Immersion Simulations. IEEE Trans Pattern Anal Mach Intell. 1991;13(6):583–598.

[86] Wang DM. A multiscale gradient algorithm for image segmentation using watersheds. Pattern Recognition. 1997;30(12):2043–2052.

[87] Manjunath BS, Chellappa R. Unsupervised Texture Segmentation Using Markov Random Field Models. IEEE Trans Pattern Anal Mach Intell. 1991;13(5):478–482.

[88] Shi JB, Malik J. Normalized cuts and image segmentation. IEEE Trans Pattern Anal Mach Intell. 2000;22(8):888–905.

[89] Boykov Y, Veksler O, Zabih R. Fast approximate energy minimization via graph cuts. IEEE Trans Pattern Anal Mach Intell. 2001;23(11):1222–1239.

[90] Xu N, Ahuja N, Bansal R. Object segmentation using graph cuts based active contours. Computer Vision and Image Understanding. 2007;107(3):210–224.

[91] Cootes TF, Taylor CJ, Cooper DH, Graham J. Active Shape Models - Their Training and Application. Computer Vision and Image Understanding. 1995;61(1):38–59.

[92] Mitchell SC, Lelieveldt BPF, van der Geest RJ, Bosch HG, Reiber JHC, Sonka M. Multistage hybrid active appearance model matching: Segmentation of left and right ventricles in cardiac MR images. IEEE Trans Med Imaging. 2001;20(5):415–423.

[93] Mitchell SC, Bosch JG, Lelieveldt BPF, van der Geest RJ, Reiber JHC, Sonka M. 3-D active appearance models: Segmentation of cardiac MR and ultrasound images. IEEE Trans Med Imaging. 2002;21(9):1167–1178.

[94] Bosch JG, Mitchell SC, Lelieveldt BPF, Nijland F, Kamp O, Sonka M, et al. Automatic segmentation of echocardiographic sequences by active appearance motion models. IEEE Trans Med Imaging. 2002;21(11):1374–1383.

[95] van der Geest RJ, Lelieveldt BPF, Angelie E, Danilouchkine M, Swingen C, Sonka M, et al. Evaluation of a new method for automated detection of left ventricular boundaries in time series of magnetic resonance images using an active appearance motion model. Journal of Cardiovascular Magnetic Resonance. 2004;6(3):609–617.

[96] Reiber JHC, Serruys PW. Quantitative coronary arteriography. In: Marcus ML, Skorton DJ, Schelbert HR, Wolf GL, editors. Cardiac Imaging. Philidelphia: Saunders; 1991. p. 211–281.

[97] van der Zwet PM, Pinto IM, Serruys PW, Reiber JH. A new approach for the automated definition of path lines in digitized coronary angiograms. Int J Card Imaging. 1990;5(2-3):75–83.

[98] Tommasini G, Rubartelli P, Piaggio M. A deterministic approach to automated stenosis quantification. Cathet Cardiovasc Interv. 1999;48(4):435–445.

[99] Barrett WA, Mortensen EN. Interactive live-wire boundary extraction. Medical image analysis. 1997;1(4):331–341.

[100] Privat C, Ravel A, Chirossel P, Borson O, Perez N, Bourlet P, et al. Endovascular Doppler guide wire in renal arteries - Correlation with angiography in 20 patients. Invest Radiol. 1999;34(8):530–535.

[101] van Assen HC, Vasbinder GBC, Stoel BC, Putter H, van Engelshoven JMA, Reiber JHC. Quantitative assessment of the morphology of renal arteries from X-ray images - Quantitative vascular analysis. Invest Radiol. 2004;39(6):365–373.

[102] Janssen JP, Koning G, de Koning PJH, Tuinenburg JC, Reiber JHC. Validation of a new method for the detection of pathlines in vascular x-ray images. Invest Radiol. 2004;39(9):524–530.

[103] Leiner T, Kessels AGH, Schurink GW, Kitslaar PJEHM, de Haan MW, Tordoir JHM, et al. Comparison of contrast-enhanced magnetic resonance angiography and digital subtraction angiography in patients with chronic critical ischemia and tissue loss. Invest Radiol. 2004;39(7):435–444.

[104] Lefevre T, Louvard Y, Morice MC, Dumas P, Loubeyre C, Benslimane A, et al. Stenting of bifurcation lesions: Classification, treatments, and results. Cathet Cardiovasc Interv. 2000;49(3):274–283.

[105] Louvard Y, Lefevre T, Morice MC. Percutaneous coronary intervention for bifurcation coronary disease. Heart. 2004;90(6):713–722.

[106] Haase J, Dimario C, Slager CJ, van der Giessen WJ, Denboer A, Defeyter PJ, et al. Invivo Validation of Online and Off-line Geometric Coronary Measurements Using Insertion of Stenosis Phantoms In Porcine Coronary-arteries. Cathet Cardiovasc Diagn. 1992;27(1):16–27.

[107] Kirkeeide RL, Fung P, Smalling RW, Gould KL. Automated evaluation of vessel diameter from arteriograms. In: Proceedings of Computers in Cardiology; 1982. p. 215 – 218.

[108] Kruger RA. Estimation of the Diameter of and Iodine Concentration Within Blood-vessels Using Digital Radiography Devices. Med Phys. 1981;8(5):652–658.

[109] Simons MA, Kruger RA, Power RLB. Cross-sectional Area Measurements By Digital Subtraction Videodensitometry. Invest Radiol. 1986;21(8):637–644.

[110] Westenberg JJM, van der Geest RJ, Wasser MNJM, van der Linden EL, van Walsum T, van Assen HC, et al. Vessel diameter measurements in gadolinium contrast-enhanced three-dimensional MRA of peripheral arteries. Magn Reson Imaging. 2000;18(1):13–22.

[111] Testi D, Zannoni C, Cappello A, Viceconti M. Border-tracing algorithm implementation for the femoral geometry reconstruction. Comput Methods Programs Biomed. 2001;65(3):175–182.

[112] Weber DM. Absolute Diameter Measurements of Coronary-arteries Based On the 1st Zero Crossing of the Fourier Spectrum. Med Phys. 1989;16(2):188–196.

[113] Hoffmann KR, Nazareth DP, Miskolczi L, Gopal A, Wang Z, Rudin S, et al. Vessel size measurements in angiograms: A comparison of techniques. Med Phys. 2002;29(7):1622–1633.

[114] Shen YZ, Barner KE. Fuzzy vector median-based surface smoothing. IEEE Transactions on Visualization and Computer Graphics. 2004;10(3):252–265.

[115] Reiber JHC, Tuinenburg JC, Koning G, Janssen JP, Rareş A, Lansky AJ, et al. Quantitative Coronary Arteriography. In: Oudkerk M, Reiser MF, editors. Coronary Radiology. 2nd ed. Medical Radiology. Dordrecht: Springer-Verlag; 2009. p. 41–65. Sub-series: Diagnostic Imaging, Baert, A.L. and Knauth, M. and Sartor, K. (eds).

[116] Reiber JHC, Schiemanck LR, van der Zwet PMJ, Goedhart B, Koning G, Lammertsma M, et al. State of the Art in Quantitative Coronary Arteriography as of 1996. In: Reiber JHC, Serruys PW, editors. Cardiovascular Imaging. Dordrecht: Kluwer Academic Publishers; 1996. p. 39–56.

[117] Tuinenburg JC, Koning G, Seppenwoolde Y, Reiber JHC. Is there an effect of flat-panel-based imaging systems on quantitative coronary and vascular angiography? Cathet Cardiovasc Interv. 2006;68(4):561–566.

[118] Reiber JHC, Koning G, von Land CD, van der Zwet PMJ. Why and how should QCA systems be validated? In: Reiber JHC, Serruys PW, editors. Progress in Quantitative Coronary Arteriography. Dordrecht: Kluwer Academic Publishers; 1994. p. 33–48.

[119] Janssen JP, Koning G, de Koning PJH, Bosch JG, Tuinenburg JC, Reiber JHC. A new approach to contour detection in X-ray arteriograms - The Wavecontour. Invest Radiol. 2005;40(8):514–520.

[120] Lansky A, Tuinenburg J, Costa M, Maeng M, Koning G, Popma J, et al. Quantitative Angiographic Methods for Bifurcation Lesions: A Consensus Statement from the European Bifurcation Group. Cathet Cardiovasc Interv. 2009;73(2):258–266.

[121] Goktekin O, Kaplan S, Dimopoulos K, Barlis P, Tanigawa J, Vatankulu MA, et al. A new quantitative analysis system for the evaluation of coronary bifurcation lesions: Comparison with current conventional methods. Cathet Cardiovasc Interv. 2007;69(2):172–180.

[122] Verheye S, Agostoni P, Dubois CL, Dens J, Ormiston J, Worthley S, et al. 9-Month Clinical, Angiographic, and Intravascular Ultrasound Results of a Prospective Evaluation of the Axxess Self-Expanding Biolimus A9-Eluting Stent in Coronary Bifurcation Lesions. J Am Coll Cardiol. 2009;53(12):1031–1039.

[123] Tu S, Koning G, Jukema W, Reiber JHC. Assessment of obstruction length and optimal viewing angle from biplane X-ray angiograms. Int J Cardiovasc Imaging. 2010;26(1):5–17.

[124] Tu S, Huang Z, Koning G, Cui K, Reiber JHC. A Novel Three-Dimensional Quantitative Coronary Angiography System: In-Vivo Comparison With Intravascular Ultrasound for Assessing Arterial Segment Length. Cathet Cardiovasc Interv. 2010;76(2):291–298.

[125] Tu S, Holm NR, Koning G, Huang Z, Reiber JHC. Fusion of 3D QCA and IVUS/OCT. Int J Cardiovasc Imaging. 2011;27(2):197–207.

[126] Lefevre T, Louvard Y, Morice MC, Loubeyre C, Piechaud JF, Dumas P. Stenting of bifurcation lesions: a rational approach. Journal of interventional cardiology. 2001;14(6):573–585.

[127] Lespérance J, Bilodeau L, Reiber JHC, Koning G, Hudon G, Bourassa M. Issues in the performance of quantitative coronary angiography in clinical research trials. In: Reiber JHC, van der Wall EE, editors. What's new in Cardiovascular Imaging? Dordrecht: Kluwer Academic Publishers; 1998. p. 31–46.

[128] Beleslin B, Ostojic M, Nedeljkovic M, et al. Assessment of the reproducibility of the basic parameters obtained from quantitative coronary arteriography analyses. In: European Heart Journal. vol. 16(abstract Suppl); 1995. p. 296.

[129] Reiber JHC, Koning G, Dijkstra J, Wahle A, Goedhart B, Sheehan FH, et al. Angiography and intravascular ultrasound. In: Sonka M, Fitzpatrick JM, editors. Handbook of Medical Imaging: Medical image processing and analysis. vol. 2. Belligham WA: SPIE Press; 2001. p. 711–808.

[130] Reiber JHC, Tuinenburg JC, Koning G, Janssen JP, Lansky A, Goedhart B. Quantitative Coronary Arteriography. In: Oudkerk M, Reiser MF, editors. Coronary Radiology Revised 2nd Edition. Medical Radiology, Diagnostic Imaging, Baert, A.L. and Knauth, M. and Sartor, K.. Berlin/Heidelberg/NewYork: Springer-Verlag; 2008. p. 41–65.

[131] Reiber JHC, von Land CD, Koning G, van der Zwet PMJ, van Houdt RCM, Schalij MJ, et al. Comparison of accuracy and precision of quantitative coronary arterial analysis between cinefilm and digital systems. In: Reiber JHC, Serruys PW, editors. Progress in Quantitative Coronary Arteriography. Dordrecht: Kluwer Academic Publishers; 1994. p. 67–85.

[132] Janssen JP, Rareş A, Tuinenburg JC, Koning G, Lansky AJ, Reiber JHC. New approaches for the assessment of vessel sizes in quantitative (cardio-)vascular X-ray analysis. Int J Cardiovasc Imaging. 2010;26(3):259–271.

[133] Reiber JHC, Booman F, Tan H, Slager CJ, Schuurbiers JC, Gerbrands JJ, et al. A cardiac image analysis system. Objective quantitative processing of angiocardiograms. In: Proceedings of Computers in Cardiology; 1978. p. 239–242.

[134] Tuinenburg JC, Koning G, Rareş A, Janssen JP, Louvard Y, Pattenier H, et al. A novel method for the analysis of bifurcation lesions in cardiovascular angiograms. Eur Heart J. 2005;26(1):478. 27th Congress of the European-Society-of-Cardiology, Stockholm, SWEDEN, SEP 03-07, 2005.

[135] Koning G, Louvard Y, Tuinenburg JC, Rareş A, Reiber JHC. A novel quantitative method for the analysis of bifurcation lesions in cardiovascular angiograms. Am J Cardiol. 2006;98(8A, S):138M. 18th Annual Transcatheter Cardiovascular Therapeutics Symposium, Washington, DC, OCT 22-27, 2006.

[136] Steigen TK, Maeng M, Wiseth R, Erglis A, Kumsars I, Narbute I, et al. Randomized study on simple versus complex stenting of coronary artery bifurcation lesions - The Nordic Bifurcation study. Circulation. 2006;114(18):1955–1961.

[137] Erglis A, Kumsars I, Niemela M, Kervinen K, Maeng M, Lassen JF, et al. Randomized Comparison of Coronary Bifurcation Stenting With the Crush Versus the Culotte Technique Using Sirolimus Eluting Stents The Nordic Stent Technique Study. Circulation-cardiovascular Interventions. 2009;2(1):27–34.

[138] Holm NR, Hojdahl H, Lassen JF, Thuesen L, Maeng M. Quantitative coronary analysis in the Nordic Bifurcation studies. Int J Cardiovasc Imaging. 2011;27(2):175–180.

[139] Medina A, de Lezo JS, Pan M. A new classification of coronary bifurcation lesions. Rev Esp Cardiol. 2006;59(2):183.

[140] Louvard Y, Thomas M, Dzavik V, Hildick-Smith D, Galassi AR, Pan M, et al. Classification of coronary artery bifurcation lesions and treatments: Time for a consensus! Cathet Cardiovasc Interv. 2008;71(2):175–183.

[141] Tuinenburg JC, Koning G, Reiber JHC. Quantitative Coronary and Vascular Angiography. In: Mario D, Dangas, Barlis, editors. Interventional Cardiology: Principal and practice. Oxford: Wiley-Blackwell; 2010. p. 90–99.

[142] Koning G, Tuinenburg JC, Hekking E, Peelen J, van Weert AWM, Bergkamp D, et al. A novel measurement technique to assess the effects of coronary brachytherapy in clinical trials. IEEE Trans Med Imaging. 2002;21(10):1254–1263.

[143] Waters D, Craven TE, Lesperance J. Prognostic-significance of Progression of Coronary Atherosclerosis. Circulation. 1993;87(4):1067–1075.

[144] Lansky AJ, Desai K, Leon MB. Quantitative coronary angiography in regression trials: A review of methodologic considerations, endpoint selection, and limitations. American Journal of Cardiology. 2002;89(4A):4B–9B.

[145] Jukema JW, Bruschke AVG, Vanboven AJ, Reiber JHC, Bal ET, Zwinderman AH, et al. Effects of Lipid-lowering By Pravastatin On Progression and Regression of Coronary-artery Disease In Symptomatic Men With Normal To Moderately Elevated Serum-cholesterol Levels - the Regression Growth Evaluation Statin Study (REGRESS). Circulation. 1995;91(10):2528–2540.

[146] Tuinenburg JC, Koning G, Rareş A, Janssen JP, Lansky AJ, Reiber JHC. Dedicated bifurcation analysis: basic principles. Int J Cardiovasc Imaging. 2011;27(2):167–174.

[147] Haase J, Escaned J, van Swijndregt EM, Ozaki Y, Gronenschild E, Slager CJ, et al. Experimental Validation of Geometric and Densitometric Coronary Measurements On the New-generation Cardiovascular Angiography Analysis System (caas-ii). Cathet Cardiovasc Diagn. 1993;30(2):104–114.

[148] Girasis C, van Geuns RJ, Onuma Y, Serruys PW. Essentials of quantitative angiography for bifurcation lesions. Eurointervention. 2010;6:J36–J43.

[149] Ramcharitar S, Daeman J, Patterson M, van Guens RJ, Boersma E, Serruys PW, et al. First direct in vivo comparison of two commercially available three-dimensional quantitative coronary angiography systems. Cathet Cardiovasc Interv. 2008;71(1):44–50.

[150] Tu S, Hao P, Koning G, Wei X, Song X, Chen A, et al. In vivo assessment of optimal viewing angles from X-ray coronary angiography. Eurointervention. 2011;7(1):112–120.