

L'ipertensione nel paziente obeso:
raccomandazioni SIIA-SIO

Bibliografia

1. Kearney PM, Whelton M, Reynolds K, Muntner P, Whelton PK, He J. Global burden of hypertension: analysis of worldwide data. *Lancet* 2005;365:217-23.
2. Jordan J, Yumuk V, Schlaich M, et al. Joint statement of the European Association for the Study of Obesity and the European Society of Hypertension: obesity and difficult to treat arterial hypertension. *J Hypertens* 2012;30:1047-55.
3. Mancia G, Fagard R, Narkiewicz K, et al. 2013 ESH/ESC Guidelines for the management of arterial hypertension: the Task Force for the management of arterial hypertension of the European Society of Hypertension (ESH) and of the European Society of Cardiology (ESC). *J Hypertens* 2013;31:1281-357.
4. Landsberg L, Aronne LJ, Beilin LJ, et al. Obesity-related hypertension: pathogenesis, cardiovascular risk, and treatment - a position paper of the Obesity Society and the American Society of Hypertension. *Obesity* 2013;21:8-24.
5. World Health Organization. Obesity: preventing and managing the global epidemic. Report on a WHO consultation. *World Health Organ Tech Rep Ser* 2000;894:i-xii, 1-253.
6. Brown CD, Higgins M, Donato KA, et al. Body mass index and the prevalence of hypertension and dyslipidemia. *Obes Res* 2000;8:605-19.
7. Sarzani R, Salvi F, Dessì-Fulgheri P, Rappelli A. Renin-angiotensin system, natriuretic peptides, obesity, metabolic syndrome, and hypertension: an integrated view in humans. *J Hypertens* 2008;26:831-43.
8. Bombelli M, Facchetti R, Sega R, et al. Impact of body mass index and waist circumference on the long-term risk of diabetes mellitus, hypertension, and cardiac organ damage. *Hypertension* 2011;58:1029-35.
9. Roger VL, Go AS, Lloyd-Jones DM, et al. Heart Disease and stroke statistics - 2012 update: a report from the American Heart Association. *Circulation* 2012;125:e2-220.
10. Lurbe E, Cifkova R, Cruickshank JK, et al.; European Society of Hypertension. Management of high blood pressure in children and adolescents: recommendations of the European Society of Hypertension. *J Hypertens* 2009;27:1719-42.
11. Spagnolo A, Giussani M, Ambruzzi AM, et al. Focus on prevention, diagnosis and treatment of hypertension in children and adolescents. *Ital J Pediatr* 2013;39:20.
12. Matus-Vliegen EM; Obesity Management Task Force of the European Association for the Study of Obesity. Prevalence, pathophysiology, health consequences and treatment options of obesity in the elderly: a guideline. *Obes Facts* 2012;5:460-83.
13. Leiter LA, Fitchett DH, Gilbert RE, et al.; Cardiometabolic Risk Working Group Executive Committee. Cardiometabolic risk in Canada: a detailed analysis and position paper by the cardiometabolic risk working group. *Can J Cardiol* 2011;27:e1-33.
14. Cerezo C, Segura J, Praga M, Ruilope LM. Guidelines updates in the treatment of obesity or metabolic syndrome and hypertension. *Curr Hypertens Rep* 2013;15:196-203.
15. Kotchen TA. Obesity-related hypertension: epidemiology, pathophysiology, and clinical management. *Am J Hypertens* 2010;23:1170-8.
16. Naukkarinen J, Heinonen S, Hakkarainen A, et al. Characterising metabolically healthy obesity in weight-discordant monozygotic twins. *Diabetologia* 2014;57:167-76.
17. Sarzani R, Bordicchia M, Marcucci P, et al. Angiotensinogen promoter variants influence gene expression in human kidney and visceral adipose tissue. *J Hum Hypertens* 2010;24:213-9.
18. Park S, Lu KT, Liu X, et al. Allele-specific expression of angiotensinogen in human subcutaneous adipose tissue. *Hypertension* 2013;62:41-7.
19. Okada S, Kozuka C, Masuzaki H, et al. Adipose tissue-specific dysregulation of angiotensinogen by oxidative stress in obesity. *Metabolism* 2010;59:1241-51.
20. Newton-Cheh C, Larson MG, Vasan RS, et al. Association of common variants in NPPA and NPPB with circulating natriuretic peptides and blood pressure. *Nat Genet* 2009;41:348-53.
21. Del Greco MF, Pattaro C, Luchner A, et al. Genome-wide association analysis and fine mapping of NT-proBNP level provide novel insight into the role of the MTHFR-CLCN6-NPPA-NPPB gene cluster. *Hum Mol Genet* 2011;20:1660-71.
22. Cannone V, Cefalù AB, Noto D, et al. The atrial natriuretic peptide genetic variant rs5068 is associated with a favorable cardiometabolic phenotype in a Mediterranean population. *Diabetes Care* 2013;36:2850-6.
23. Sarzani R, Strazzullo P, Salvi F, et al. Natriuretic peptide clearance receptor alleles and susceptibility to abdominal adiposity. *Obes Res* 2004;12:351-6.
24. Donfrancesco C, Ippolito R, Lo Nocer C, et al. Excess dietary sodium and inadequate potassium intake in Italy: results of the MINISAL study. *Nutr Metab Cardiovasc Dis* 2013;23:850-6.
25. Strazzullo P, Cairrella G, Campanozzi A, et al.; GIRCSI Working Group. Population based strategy for dietary salt intake reduction: Italian initiatives in the European framework. *Nutr Metab Cardiovasc Dis* 2012;22:161-6.
26. Asferg CL, Nielsen SJ, Andersen UB, et al. Relative atrial natriuretic peptide deficiency and inadequate renin and angiotensin II suppression in obese hypertensive men. *Hypertension* 2013;62:147-53.
27. Trudu M, Janas S, Lanzani C, et al.; Swiss Kidney Project on Genes in Hypertension (SKIPOGH) Team. Common noncoding UMOD gene variants induce salt-sensitive hypertension and kidney damage by increasing uromodulin expression. *Nat Med* 2013;19:1655-60.
28. Martel G, Hamet P, Tremblay J. Central role of guanylyl cyclase in natriuretic peptide signaling in hypertension and metabolic syndrome. *Mol Cell Biochem* 2010;334:53-65.
29. Oliver PM, Fox JE, Kim R, et al. Hypertension, cardiac hypertrophy, and sudden death in mice lacking natriuretic peptide receptor A. *Proc Natl Acad Sci U S A* 1997;94:14730-5.
30. Tamura N, Ogawa Y, Chusho H, et al. Cardiac fibrosis in mice lacking brain

- natriuretic peptide. *Proc Natl Acad Sci U S A* 2000;97:4239-44.
31. Sengenès C, Berlan M, De Glisezinski I, Lafontan M, Galitzky J. Natriuretic peptides: a new lipolytic pathway in human adipocytes. *FASEB J* 2000;14:1345-51.
 32. Moro C, Polak J, Richterova B, et al. Differential regulation of atrial natriuretic peptide- and adrenergic receptor-dependent lipolytic pathways in human adipose tissue. *Metabolism* 2005;54:122-31.
 33. Moro C, Polak J, Hejnova J, et al. Atrial natriuretic peptide stimulates lipid mobilization during repeated bouts of endurance exercise. *Am J Physiol Endocrinol Metab* 2006;290:E864-9.
 34. van Marken Lichtenbelt WD, Vanhomerig JW, Smulders NM, et al. Cold-activated brown adipose tissue in healthy men. *N Engl J Med* 2009;360:1500-8.
 35. Bordicchia M, Liu D, Amri EZ, et al. Cardiac natriuretic peptides act via p38 MAPK to induce the brown fat thermogenic program in mouse and human adipocytes. *J Clin Invest* 2012;122:1022-36.
 36. Sarzani R, Paci VM, Zingaretti CM, et al. Fasting inhibits natriuretic peptides clearance receptor expression in rat adipose tissue. *J Hypertens* 1995;13:1241-6.
 37. Dessì-Fulgheri P, Sarzani R, Serenelli M, et al. Low calorie diet enhances renal, hemodynamic, and humoral effects of exogenous atrial natriuretic peptide in obese hypertensives. *Hypertension* 1999;33:658-62.
 38. Birkenfeld AL, Boschmann M, Engeli S, et al. Atrial natriuretic peptide and adiponectin interactions in man. *PLoS One* 2012;7:e43238.
 39. Wang TJ, Larson MG, Levy D, et al. Impact of obesity on plasma natriuretic peptide levels. *Circulation* 2004;109:594-600.
 40. Frigolet ME, Torres N, Tovar AR. The renin-angiotensin system in adipose tissue and its metabolic consequences during obesity. *J Nutr Biochem* 2013;24:2003-15.
 41. Samuelsson AM, Clark J, Rudyk O, et al. Experimental hyperleptinemia in neonatal rats leads to selective leptin responsiveness, hypertension, and altered myocardial function. *Hypertension* 2013;62:627-33.
 42. Sarzani R, Guerra F, Mancinelli L, Buglioni A, Franchi E, Dessì-Fulgheri P. Plasma aldosterone is increased in class 2 and 3 obese essential hypertensive patients despite drug treatment. *Am J Hypertens* 2012;25:818-26.
 43. Pereira CD, Azevedo I, Monteiro R, Martins MJ. 11 β -Hydroxysteroid dehydrogenase type 1: relevance of its modulation in the pathophysiology of obesity, the metabolic syndrome and type 2 diabetes mellitus. *Diabetes Obes Metab* 2012;14:869-81.
 44. Simonds SE, Cowley MA. Hypertension in obesity: is leptin the culprit? *Trends Neurosci* 2013;36:121-32.
 45. Canale MP, Manca di Villahermosa S, Martino G, et al. Obesity-related metabolic syndrome: mechanisms of sympathetic overactivity. *Int J Endocrinol* 2013;2013:865965.
 46. Mark AL. Selective leptin resistance revisited. *Am J Physiol Regul Integr Comp Physiol* 2013;305:R566-81.
 47. Rahmouni K, Morgan DA, Morgan GM, Mark AL, Haynes WG. Role of selective leptin resistance in diet-induced obesity hypertension. *Diabetes* 2005;54:2012-8.
 48. Mokhlesi B. Obesity hypoventilation syndrome: a state-of-the-art review. *Respir Care* 2010;55:1347-65.
 49. Bönner G. Hyperinsulinemia, insulin resistance, and hypertension. *J Cardiovasc Pharmacol* 1994;24(Suppl 2):S39-49.
 50. Esler M, Straznicki N, Eikelis N, Masuo K, Lambert G, Lambert E. Mechanisms of sympathetic activation in obesity-related hypertension. *Hypertension* 2006;48:787-96.
 51. Grassi G, Seravalle G, Dell'Oro R. Sympathetic activation in obesity: a noninnocent bystander. *Hypertension* 2010;56:338-40.
 52. Parati G, Esler M. The human sympathetic nervous system: its relevance in hypertension and heart failure. *Eur Heart J* 2012;33:1058-66.
 53. Schlaich MP, Sobotka PA, Krum H, Lambert E, Esler MD. Renal sympathetic-nerve ablation for uncontrolled hypertension. *N Engl J Med* 2009;361:932-4.
 54. Olsen MH, Hansen TW, Christensen MK, et al. N-terminal pro brain natriuretic peptide is inversely related to metabolic cardiovascular risk factors and the metabolic syndrome. *Hypertension* 2005;46:660-6.
 55. Khan AM, Cheng S, Magnusson M, et al. Cardiac natriuretic peptides, obesity, and insulin resistance: evidence from two community-based studies. *J Clin Endocrinol Metab* 2011;96:3242-9.
 56. Smorlesi A, Frontini A, Giordano A, Cinti S. The adipose organ: white-brown adipocyte plasticity and metabolic inflammation. *Obes Rev* 2012;13(Suppl 2):83-96.
 57. Giordano A, Murano I, Mondini E, et al. Obese adipocytes show ultrastructural features of stressed cells and die of pyroptosis. *J Lipid Res* 2013;54:2423-36.
 58. Sarzani R, Marcucci P, Salvi F, et al. Angiotensin II stimulates and atrial natriuretic peptide inhibits human visceral adipocyte growth. *Int J Obes* 2008;32:259-67.
 59. Marchesi C, Ebrahimian T, Angulo O, Paradis P, Schiffrin EL. Endothelial nitric oxide synthase uncoupling and perivascular adipose oxidative stress and inflammation contribute to vascular dysfunction in a rodent model of metabolic syndrome. *Hypertension* 2009;54:1384-92.
 60. Montezano AC, Touyz RM. Molecular mechanisms of hypertension - reactive oxygen species and antioxidants: a basic science update for the clinician. *Can J Cardiol* 2012;28:288-95.
 61. Liu ZQ. Antioxidants may not always be beneficial to health. *Nutrition* 2014;30:131-3.
 62. Hui X, Lam KS, Vanhoutte PM, Xu A. Adiponectin and cardiovascular health: an update. *Br J Pharmacol* 2012;165:574-90.
 63. Goldstein BJ, Scalia R. Adiponectin: a novel adipokine linking adipocytes and vascular function. *J Clin Endocrinol Metab* 2000;89:2563-8.
 64. Shi X, Wang X, Li Q, et al. Nuclear factor κ B (NF- κ B) suppresses food intake and energy expenditure in mice by directly activating the Pomc promoter. *Diabetologia* 2013;56:925-36.

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65. Martins D, Tareen N, Pan D, Norris K. The relationship between body mass index, blood pressure and pulse rate among normotensive and hypertensive participants in the third National Health and Nutrition Examination Survey (NHANES). *Cell Mol Biol* 2003;49:1305-9.
66. Redon J, Cifkova R, Laurent S, et al. Mechanisms of hypertension in the cardiometabolic syndrome. *J Hypertens* 2009;27:441-51.
67. Sarzani R. The clinical significance of metabolic syndrome in hypertension: metabolic syndrome increases cardiovascular risk: the contrary position. *High Blood Press Cardiovasc Prev* 2008;15:59-62.
68. Lowell BB, Shulman GI. Mitochondrial dysfunction and type 2 diabetes. *Science* 2005;307:384-7.
69. Lewis GF, Carpentier A, Adeli K, Giacca A. Disordered fat storage mobilization in the pathogenesis of insulin resistance and type 2 diabetes. *Endocr Rev* 2002;23:201-29.
70. Petersen KF, Dufour S, Befroy D, Garcia R, Shulman GI. Impaired mitochondrial activity in the insulin-resistant offspring of patients with type 2 diabetes. *N Engl J Med* 2004;350:664-71.
71. Bajaj M, Pratipanawat T, Berria R, et al. Free fatty acids reduce splanchnic and peripheral glucose uptake in patients with type 2 diabetes. *Diabetes* 2002;51:3043-8.
72. Kashyap S, Belfort R, Gastaldelli A, et al. A sustained increase in plasma free fatty acids impairs insulin secretion in nondiabetic subjects genetically predisposed to develop type 2 diabetes. *Diabetes* 2003;52:2461-74.
73. Scarpulla RC. Nuclear activators and coactivators in mammalian mitochondrial biogenesis. *Biochim Biophys Acta* 2002;1576:1-14.
74. Dimmeler S, Fleming I, Fisslthaler B, Hermann C, Busse R, Zeiher AM. Activation of nitric oxide synthase in endothelial cells by Akt-dependent phosphorylation. *Nature* 1999;399:601-5.
75. Mazzone T, Chait A, Plutzky J. Cardiovascular disease risk in type 2 diabetes mellitus: insights from mechanistic studies. *Lancet* 2008;371:1800-9.
76. Laight DW, Carrier MJ, Anggard EE. Antioxidants, diabetes and endothelial dysfunction. *Cardiovasc Res* 2000;47:457-64.
77. Vlassara H, Fuh H, Makita Z, Krungkrai S, Cerami A, Bucala R. Exogenous advanced glycosylation end products induce complex vascular dysfunction in normal animals: a model for diabetic and aging complications. *Proc Natl Acad Sci U S A* 1992;89:12043-7.
78. Hink U, Li H, Mollnau H, et al. Mechanisms underlying endothelial dysfunction in diabetes mellitus. *Circ Res* 2001;88:E14-22.
79. Mezzetti A, Cipollone F, Cucurullo F. Oxidative stress and cardiovascular complications in diabetes: isoprostanes as new markers on an old paradigm. *Cardiovasc Res* 2000;47:475-88.
80. Haidara MA, Yassin HZ, Rateb M, Ammar H, Zorkani MA. Role of oxidative stress in development of cardiovascular complications in diabetes mellitus. *Curr Vasc Pharmacol* 2006;4:215-27.
81. Franklin SS. Do diabetes and hypertension interact to accelerate vascular ageing? *J Hypertens* 2002;20:1693-6.
82. Goldin A, Beckman JA, Schmidt AM, Creager MA. Advanced glycation end products: sparking the development of diabetic vascular injury. *Circulation* 2006;114:597-605.
83. Vinik AI. The metabolic basis of atherogenic dyslipidemia. *Clin Cornerstone* 2005;7:27-35.
84. Bamba V, Rader DJ. Obesity and atherogenic dyslipidemia. *Gastroenterology* 2007;132:2181-90.
85. Kashyap S, Belfort R, Berria R, et al. Discordant effects of a chronic physiological increase in plasma FFA on insulin signaling in healthy subjects with or without a family history of type 2 diabetes. *Am J Physiol Endocrinol Metab* 2004;287:E537-46.
86. Belfort R, Mandarino L, Kashyap S, et al. Dose-response effect of elevated plasma free fatty acid on insulin signaling. *Diabetes* 2005;54:1640-8.
87. Reyna SM, Ghosh S, Tantiwong P, et al. Elevated toll-like receptor 4 expression and signaling in muscle from insulin-resistant subjects. *Diabetes* 2008;57:2595-602.
88. Perbal B. CCN proteins: multifunctional signalling regulators. *Lancet* 2004;363:62-4.
89. Cicha I, Yilmaz A, Klein M, et al. Connective tissue growth factor is overexpressed in complicated atherosclerotic plaques and induces mononuclear cell chemotaxis in vitro. *Arterioscler Thromb Vasc Biol* 2005;25:1008-13.
90. James WP. Assessing obesity: are ethnic differences in body mass index and waist classification criteria justified? *Obes Rev* 2005;6:179-81.
91. Stone NJ, Robinson J, Lichtenstein AH, et al. 2013 ACC/AHA Guideline on the treatment of blood cholesterol to reduce atherosclerotic cardiovascular risk in adults: a report of the American College of Cardiology/American Heart Association Task Force on Practice Guidelines. *Circulation* 2013 Nov 12 [Epub ahead of print].
92. Kim J, Montagnani M, Koh KK, Quon MJ. Reciprocal relationships between insulin resistance and endothelial dysfunction: molecular and pathophysiological mechanisms. *Circulation* 2006;113:1888-904.
93. Montagnani M, Quon MJ. Insulin action in vascular endothelium: potential mechanisms linking insulin resistance with hypertension. *Diabetes Obes Metab* 2000;2:285-92.
94. Ledoux S, Quequiner J, Msika S, et al. Angiogenesis associated with visceral and subcutaneous adipose tissue in severe human obesity. *Diabetes* 2008;57:3247-57.
95. Kotsis VT, Stabouli SV, Papamichael CM, Zakopoulos NA. Impact of obesity in intima media thickness of carotid arteries. *Obesity* 2006;14:1708-15.
96. Wildman RP, Farhat GN, Patel AS, et al. Weight change is associated with change in arterial stiffness among healthy young adults. *Hypertension* 2005;45:187-92.
97. Wunsch R, de Sousa G, Toschke AM, Reinehr T. Intima-media thickness in obese children before and after weight loss. *Pediatrics* 2006;118:2334-40.
98. Engeli S, Bohnke J, Gorzelniak K, et al. Weight loss and the renin-

- angiotensin-aldosterone system. *Hypertension* 2005;45:356-62.
99. Weber MA, Schiffrin EL, White WB, et al. Clinical practice guidelines for the management of hypertension in the community: a statement by the American Society of Hypertension and the International Society of Hypertension. *J Clin Hypertens* 2014;16:14-26.
 100. Pickering TG, Hall JE, Appel LJ, et al. Recommendations for blood pressure measurement in humans and experimental animals: Part 1: blood pressure measurement in humans: a statement for professionals from the Subcommittee of Professional and Public Education of the American Heart Association Council on High Blood Pressure Research. *Hypertension* 2005;45:142-61.
 101. Prisant ML, Friedman B, Alpert B, Grim CE, Hayes M, Grim CM. Response to recommendations for blood pressure measurement in human and experimental animals: Part 1: blood pressure measurement in humans and mis cuffing: a problem with new guidelines [letter]. *Hypertension* 2006;48:e4.
 102. O'Brien E, Asmar R, Beilin L, et al. European Society of Hypertension Working Group on Blood Pressure Monitoring. Practice guidelines of the European Society of Hypertension for clinic, ambulatory and self blood pressure measurement. *J Hypertens* 2005;23:697-701.
 103. Palatini P, Parati G. Blood pressure measurement in very obese patients: a challenging problem. *J Hypertens* 2011;29:425-9.
 104. O'Brien E. What to do when faced with an unmeasurable ambulatory blood pressure? *J Hypertens* 2011;29:451-3.
 105. Parati G, Omboni S, Palatini P, et al. Linee guida della Società Italiana dell'Ipertensione Arteriosa sulla misurazione convenzionale e automatica della pressione arteriosa nello studio medico, a domicilio e nelle 24 ore. *Ipertensione e Prevenzione Cardiovascolare* 2008;15:63-115.
 106. National High Blood Pressure Education Program Working Group on High Blood Pressure in Children and Adolescents. The fourth report on the diagnosis, evaluation, and treatment of high blood pressure in children and adolescents. *Pediatrics* 2004;114(2 Suppl):555-76.
 107. Parati G, Stergiou GS, Asmar R, et al.; ESH Working Group on Blood Pressure Monitoring. European Society of Hypertension guidelines for blood pressure monitoring at home: a summary report of the Second International Consensus Conference on Home Blood Pressure Monitoring. *J Hypertens* 2008;26:1505-26.
 108. Parati G, Stergiou GS, Asmar R, et al.; ESH Working Group on Blood Pressure Monitoring. European Society of Hypertension practice guidelines for home blood pressure monitoring. *J Hum Hypertens* 2010;24:779-85.
 109. Stergiou GS, Alamara CV, Salmagi EV, Vaindirlis IN, Dacou-Voutetakis C, Mountokalakis TD. Reproducibility of home and ambulatory blood pressure in children and adolescents. *Blood Press Monit* 2005;10:143-7.
 110. Stergiou GS, Karpettas N, Kapoyiannis A, Stefanidis CJ, Vazeou A. Home blood pressure monitoring in children and adolescents: a systematic review. *J Hypertens* 2009;27:1941-7.
 111. Karatzi K, Protogerou A, Rarra V, Stergiou GS. Home and office blood pressure in children and adolescents: the role of obesity. The Arsakeion School Study. *J Hum Hypertens* 2009;23:512-20.
 112. O'Brien E, Parati G, Stergiou G, et al.; European Society of Hypertension Working Group on Blood Pressure Monitoring. European Society of Hypertension position paper on ambulatory blood pressure monitoring. *J Hypertens* 2013;31:1731-68.
 113. Parati G, Ferrucci A, Palatini P. Raccomandazioni per il monitoraggio dinamico della pressione arteriosa nelle 24 ore. *Ipertensione e Prevenzione Cardiovascolare* 2012;19:201-4.
 114. Urbina E, Alpert B, Flynn J, et al. Ambulatory blood pressure monitoring in children and adolescents: recommendations for standard assessment: a scientific statement from the American Heart Association Atherosclerosis, Hypertension, and Obesity in Youth Committee of the council on cardiovascular disease in the young and the council for high blood pressure research. *Hypertension* 2008;52:433-51.
 115. Eguchi K. Ambulatory blood pressure monitoring in diabetes and obesity - a review. *Int J Hypertens* 2011;2011:954757.
 116. Parati G, Palatini P, Ferrucci A. Raccomandazioni per la misurazione della pressione arteriosa al domicilio. *Ipertensione e Prevenzione Cardiovascolare* 2012;19:197-200.
 117. Chiodini I. Diagnosis and treatment of subclinical hypercortisolism. *J Clin Endocrinol Metab* 2011;96:1223-36.
 118. Goff DC Jr, Lloyd-Jones DM, Bennett G, et al. 2013 ACC/AHA Guideline on the assessment of cardiovascular risk: a report of the American College of Cardiology/American Heart Association Task Force on Practice Guidelines. *Circulation* 2013 Nov 12 [Epub ahead of print].
 119. Criqui MH, Denenberg JO, Ix JH, et al. Calcium density of coronary artery plaque and risk of incident cardiovascular events. *JAMA* 2014;311:271-8.
 120. Matsushita K, Mahmoodi BK, Woodward M, et al. Comparison of risk prediction using the CKD-EPI equation and the MDRD study equation for estimated glomerular filtration rate. *JAMA* 2012;307:1941-51.
 121. Wuerzner G, Bochud M, Giusti V, Burnier M. Measurement of glomerular filtration rate in obese patients: pitfalls and potential consequences on drug therapy. *Obes Facts* 2011;4:238-43.
 122. Nair S, Mishra V, Hayden K, et al. The four-variable modification of diet in renal disease formula underestimates glomerular filtration rate in obese type 2 diabetic individuals with chronic kidney disease. *Diabetologia* 2011;54:1304-7.
 123. Thoenes M, Reil JC, Khan BV, et al. Abdominal obesity is associated with microalbuminuria and an elevated cardiovascular risk profile in patients with hypertension. *Vasc Health Risk Manag* 2009;5:577-85.

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124. Guerra F, Mancinelli L, Buglioni A, et al. Microalbuminuria and left ventricular mass in overweight and obese hypertensive patients: role of the metabolic syndrome. *High Blood Press Cardiovasc Prev* 2011;18:195-201.
125. Fraley MA, Bircham JA, Senkottaiyan N, Alpert MA. Obesity and the electrocardiogram. *Obes Rev* 2005;6:275-81.
126. Messerli FH, Nunez BD, Ventura HO, Snyder DW. Overweight and sudden death. Increased ventricular ectopy in cardiopathy of obesity. *Arch Intern Med* 1987;147:1725-8.
127. Lauer MS, Anderson KM, Kannel WB, Levy D. The impact of obesity on left ventricular mass and geometry. The Framingham Heart Study. *JAMA* 1991;266:231-6.
128. Cuspidi C, Facchetti R, Sala C, et al. Normal values of left ventricular mass: echocardiographic findings from the PAMELA study. *J Hypertens* 2012;30:997-1003.
129. da Costa W, Riera AR, Costa Fde A, et al. Correlation of electrocardiographic left ventricular hypertrophy criteria with left ventricular mass by echocardiogram in obese hypertensive patients. *J Electrocardiol* 2008;41:724-9.
130. Dominiek-Karłowicz J, Lichodziejewska B, Lisik W, et al. Electrocardiographic criteria of left ventricular hypertrophy in patients with morbid obesity. *Ann Noninvasive Electrocardiol* 2011;16:258-62.
131. Cuspidi C, De Luca N, Muiesan ML. Raccomandazioni per l'ecocardiografia nella ipertensione arteriosa. *Iipertensione e Prevenzione Cardiovascolare* 2012;19:205-7.
132. Dewey FE, Rosenthal D, Murphy DJ Jr, Froelicher VF, Ashley EA. Does size matter? Clinical applications of scaling cardiac size and function for body size. *Circulation* 2008;117:2279-87.
133. Cuspidi C, Negri F, Giudici V, et al.; Working Group on Heart and Hypertension of the Italian Society of Hypertension. Self-reported weight and height: implications for left ventricular hypertrophy detection. An Italian multi-center study. *Clin Exp Hypertens* 2011;33:192-201.
134. Chirinos JA, Segers P, De Buyzere ML, et al. Left ventricular mass: allometric scaling, normative values, effect of obesity, and prognostic performance. *Hypertension* 2010;56:91-8.
135. Kenchaiah S, Evans JC, Levy D, et al. Obesity and the risk of heart failure. *N Engl J Med* 2002;347:305-13.
136. Iacobellis G, Willens HJ. Echocardiographic epicardial fat: a review of research and clinical applications. *J Am Soc Echocardiogr* 2009;22:1311-9.
137. Mookadam F, Goel R, Alharthi MS, Jiamsripong P, Cha S. Epicardial fat and its association with cardiovascular risk: a cross-sectional observational study. *Heart Views* 2010;11:103-8.
138. Jhaveri RR, Pond KK, Hauser TH, et al. Cardiac remodeling after substantial weight loss: a prospective cardiac magnetic resonance study after bariatric surgery. *Surg Obes Relat Dis* 2009;5:648-52.
139. de Simone G, Devereux RB, Daniels SR, Koren M, Meyer RA, Laragh JH. Effect of growth on variability of left ventricular mass: assessment of allometric signals in adults and children and their capacity to predict cardiovascular risk. *J Am Coll Cardiol* 1995;25:1056-62.
140. Daniels SR, Kimball TR, Morrison JA, Khoury P, Meyer RA. Indexing left ventricular mass to account for differences in body size in children and adolescents without cardiovascular disease. *Am J Cardiol* 1995;76:699-701.
141. Zhu W, Huang X, He J, Li M, Neubauer H. Arterial intima-media thickening and endothelial dysfunction in obese Chinese children. *Eur J Pediatr* 2005;164:337-44.
142. Sorof JM, Alexandrov AV, Garami Z, et al. Carotid ultrasonography for detection of vascular abnormalities in hypertensive children. *Pediatr Nephrol* 2003;18:1020-4.
143. Gilardini L, Pasqualinotto L, Di Matteo S, et al. Factors associated with early atherosclerosis and arterial calcifications in young subjects with a benign phenotype of obesity. *Obesity* 2011;19:1684-9.
144. Assadi F. Relation of left ventricular hypertrophy to microalbuminuria and C-reactive protein in children and adolescents with essential hypertension. *Pediatr Cardiol* 2008;29:580-4.
145. Tilg H, Moschen AR. Adipocytokines: mediators linking adipose tissue, inflammation and immunity. *Nat Rev Immunol* 2006;6:772-83.
146. Lemieux I, Pascot A, Prud'homme D, et al. Elevated C-reactive protein: another component of the atherothrombotic profile of abdominal obesity. *Arterioscler Thromb Vasc Biol* 2001;21:961-7.
147. Iacobellis G, Ribaldo MC, Assael F, et al. Echocardiographic epicardial adipose tissue is related to anthropometric and clinical parameters of metabolic syndrome: a new indicator of cardiovascular risk.. *J Clin Endocrinol Metab* 2003;88:5163-8.
148. Iacobellis G, Malavazos AE, Corsi MM. Epicardial fat: from the biomolecular aspects to the clinical practice. *Int J Biochem Cell Biol* 2011;43:1651-4.
149. Mazurek T, Zhang L, Zalewski A, et al. Human epicardial adipose tissue is a source of inflammatory mediators. *Circulation* 2003;108:2460-6.
150. Iacobellis G, Willens HJ, Barbaro G, Sharma AM. Threshold values of high-risk echocardiographic epicardial fat thickness. *Obesity* 2008;16:887-92.
151. Mureddu GF, de Simone G, Greco R, Rosato GF, Contaldo F. Left ventricular filling pattern in uncomplicated obesity. *Am J Cardiol* 1996;77:509-14.
152. Iacobellis G, Ribaldo MC, Zappaterreno A, Iannucci CV, Leonetti F. Relation between epicardial adipose tissue and left ventricular mass. *Am J Cardiol* 2004;94:1084-7.
153. Malavazos AE, Ermetici F, Coman C, Corsi MM, Morricone L, Ambrosi B. Influence of epicardial adipose tissue and adipocytokine levels on cardiac abnormalities in visceral obesity. *Int J Cardiol* 2007;121:132-4.
154. Morricone L, Malavazos AE, Coman C, Donati C, Hassan T, Caviezel F. Echocardiographic abnormalities in normotensive obese patients:

- relationship with visceral fat. *Obes Res* 2002;10:489-98.
155. Maher V, O'Dowd M, Carey M, et al. Association of central obesity with early carotid intima-media thickening is independent of that from other risk factors. *Int J Obes* 2009;33:136-43.
 156. Natale F, Tedesco MA, Mocerino R, et al. Visceral adiposity and arterial stiffness: echocardiographic epicardial fat thickness reflects, better than waist circumference, carotid arterial stiffness in a large population of hypertensives. *Eur J Echocardiogr* 2009;10:549-55.
 157. Coutinho T, Goel K, Correa de Sa D, et al. Central obesity and survival in subjects with coronary artery disease: a systematic review of the literature and collaborative analysis with individual subject data. *J Am Coll Cardiol* 2011;57:1877-86.
 158. Morriconi L, Donati C, Hassan T, Cioffi P, Caviezel F. Relationship of visceral fat distribution to angiographically assessed coronary artery disease: results in subjects with or without diabetes or impaired glucose tolerance. *Nutr Metab Cardiovasc Dis* 2002;12:275-83.
 159. Bettencourt N, Toshke AM, Leite D, et al. Epicardial adipose tissue is an independent predictor of coronary atherosclerotic burden. *Int J Cardiol* 2012;158:26-32.
 160. Grandi AM, Gaudio G, Fachinetti A, et al. Insulin sensitivity in obese normotensive adults: influence of family history of hypertension. *Int J Obes Relat Metab Disord* 1998;22:910-4.
 161. Julius S, Valentini M, Palatini P. Overweight and hypertension: a 2-way street? *Hypertension* 2000;35:807-13.
 162. Sharma AM, Pischon T, Hardt S, Kunz I, Luft FC. Beta-adrenergic receptor blockers and weight gain: a systematic analysis. *Hypertension* 2001;37:250-4.
 163. Elliott WJ, Meyer PM. Incident diabetes in clinical trials of antihypertensive drugs: a network meta-analysis. *Lancet* 2007;369:201-7.
 164. Mancia G, Grassi G, Zanchetti A. New-onset diabetes and antihypertensive drugs. *J Hypertens* 2006;24:3-10.
 165. Redon J, Cifkova R, Laurent S, et al.; Scientific Council of the European Society of Hypertension. The metabolic syndrome in hypertension: European Society of Hypertension position statement. *J Hypertens* 2008;26:1891-900.
 166. Kapur VK. Obstructive sleep apnea: diagnosis, epidemiology, and economics. *Respir Care* 2010;55:1155-67.
 167. Ayappa I, Norman RG, Seelall V, Rapoport DM. Validation of a self-applied unattended monitor for sleep disordered breathing. *J Clin Sleep Med* 2008;4:26-37.
 168. Young T, Shahar E, Nieto FJ, et al. Predictors of sleep-disordered breathing in community-dwelling adults: the Sleep Heart Health Study. *Arch Intern Med* 2002;162:893-900.
 169. Vgontzas AN, Bixler EO, Chrousos GP. Sleep apnea is a manifestation of the metabolic syndrome. *Sleep Med Rev* 2005;9:211-24.
 170. Parati G, Lombardi C, Hedner J, et al.; EU COST Action B26 Members. Recommendations for the management of patients with obstructive sleep apnoea and hypertension. *Eur Respir J* 2013;41:523-38.
 171. Baguet JP, Hammer L, Lévy P, et al. Night-time and diastolic hypertension are common and underestimated conditions in newly diagnosed apnoeic patients. *J Hypertens* 2005;23:521-7.
 172. Parati G, Lombardi C, Hedner J, et al.; EU COST ACTION B26 Members. Position paper on the management of patients with obstructive sleep apnea and hypertension: joint recommendations by the European Society of Hypertension, by the European Respiratory Society and by the members of the European COST (COoperation in Scientific and Technological research) ACTION B26 on obstructive sleep apnea. *J Hypertens* 2012;30:633-46.
 173. Barbé F, Duran-Cantolla J, Sanchez-de-la-Torre M, et al. Effect of continuous positive airway pressure on the incidence of hypertension and cardiovascular events in nonsleepy patients with obstructive sleep apnea: a randomized controlled trial. *JAMA* 2012;307:2161-8.
 174. Baguet JP, Narkiewicz K, Pépin JL, et al. Hypertension and obstructive sleep apnoea. *European Society of Hypertension Scientific Newsletter: Update on Hypertension Management* 2011;12:49-50.
 175. Davies CW, Crosby JH, Mullins RL, Barbour C, Davies RJ, Stradling JR. Case-control study of 24 hour ambulatory blood pressure in patients with obstructive sleep apnoea and normal matched control subjects. *Thorax* 2000;55:736-40.
 176. Gami AS, Pressman G, Caples SM, et al. Association of atrial fibrillation and obstructive sleep apnea. *Circulation* 2004;110:364-7.
 177. Cioffi G, Russo TE, Stefanelli C, et al. Severe obstructive sleep apnea elicits concentric left ventricular geometry. *J Hypertens* 2010;28:1074-82.
 178. Baguet JP, Barone-Rochette G, Lévy P, et al. Left ventricular diastolic dysfunction is linked to severity of obstructive sleep apnoea. *Eur Respir J* 2010;36:1323-9.
 179. Hedner J, Grote L, Bonsignore M, et al. The European Sleep Apnoea Database (ESADA): report from 22 European sleep laboratories. *Eur Respir J* 2011;38:635-42.
 180. Lettieri CJ. The 5 most common ocular manifestations of obstructive sleep apnea. *Medscape Oct 2, 2013* <http://www.medscape.com/viewarticle/811875> [accessed April 22, 2014].
 181. Bazzano LA, Khan Z, Reynolds K, He J. Effect of nocturnal nasal continuous positive airway pressure on blood pressure in obstructive sleep apnea. *Hypertension* 2007;50:417-23.
 182. Kasiakogias A, Tsioufis C, Thomopoulos C, et al. Effects of continuous positive airway pressure on blood pressure in hypertensive patients with obstructive sleep apnea: a 3-year follow-up. *J Hypertens* 2013;31:352-60.
 183. Kraiczki H, Hedner J, Peker Y, Grote L. Comparison of atenolol, amlodipine, enalapril, hydrochlorothiazide, and losartan for antihypertensive treatment in patients with obstructive sleep apnea. *Am J Respir Crit Care Med* 2000;161:1423-8.
 184. Zanchetti A. What should be learnt about the management of obstructive

L'ipertensione nel paziente obeso:
raccomandazioni SIIA-SIO

- sleep apnea in hypertension? *J Hypertens* 2012;30:669-70.
185. Stamler R, Stamler J, Grimm R, et al. Nutritional therapy for high blood pressure. Final report of a four-year randomized controlled trial - the Hypertension Control Program. *JAMA* 1987;257:1484-91.
186. Whelton PK, Appel LJ, Espeland MA, et al. Sodium reduction and weight loss in the treatment of hypertension in older persons: a randomized controlled trial of nonpharmacologic interventions in the elderly (TONE). TONE Collaborative Research Group. *JAMA* 1998;279:839-46.
187. Stevens VJ, Obarzanek E, Cook NR, et al.; Trials for Hypertension Prevention Research Group. Long-term weight loss and changes in blood pressure: results of the Trials of Hypertension Prevention, phase II. *Ann Intern Med* 2001;134:1-11.
188. Wing RR; Look AHEAD Research Group. Long-term effects of a lifestyle intervention on weight and cardiovascular risk factors in individuals with type 2 diabetes mellitus: four-year results of the Look AHEAD trial. *Arch Intern Med* 2010;170:1566-75.
189. Wing RR, Bolin P, Brancati FL, et al.; Look AHEAD Research Group. Cardiovascular effects of intensive lifestyle intervention in type 2 diabetes. *N Engl J Med* 2013;369:145-54.
190. Neter JE, Stam BE, Kok FJ, Grobbee DE, Geleijnse JM. Influence of weight reduction on blood pressure: a meta-analysis of randomized controlled trials. *Hypertension* 2003;42:878-84.
191. Aucott L, Poobalan A, Smith WC, Avenell A, Jung R, Broom J. Effects of weight loss in overweight/obese individuals and long-term hypertension outcomes: a systematic review. *Hypertension* 2005;45:1035-41.
192. Dengo AL, Dennis EA, Orr JS, et al. Arterial destiffening with weight loss in overweight and obese middle-aged and older adults. *Hypertension* 2010;55:855-61.
193. Sacks FM, Campos H. Dietary therapy in hypertension. *N Engl J Med* 2010;362:2102-12.
194. Hooper L, Bartlett C, Davey Smith G, Ebrahim S. Systematic review of long term effects of advice to reduce dietary salt in adults. *BMJ* 2002;325:628.
195. Vollmer WM, Sacks FM, Ard J, et al.; DASH-Sodium Trial Collaborative Research Group. Effects of diet and sodium intake on blood pressure: subgroup analysis of the DASH-sodium trial. *Ann Intern Med* 2001;135:1019-28.
196. He FJ, Markandu ND, MacGregor GA. Modest salt reduction lowers blood pressure in isolated systolic hypertension and combined hypertension. *Hypertension* 2005;46:66-70.
197. Dickinson HO, Mason JM, Nicolson DJ, et al. Lifestyle interventions to reduce raised blood pressure: a systematic review of randomized controlled trials. *J Hypertens* 2006;24:215-33.
198. Stamler R. Implications of the INTERSALT study. *Hypertension* 1991;17(1 Suppl):116-20.
199. Strazzullo P, D'Elia L, Kandala NB, Cappuccio FP. Salt intake, stroke, and cardiovascular disease: meta-analysis of prospective studies. *BMJ* 2009;339:b4567.
200. de Jongh RT, Serné EH, Ijzerman RG, Stehouwer CD. Microvascular function: a potential link between salt sensitivity, insulin resistance and hypertension. *J Hypertens* 2007;25:1887-93.
201. Safar ME, Temmar M, Kakou A, Lacolley P, Thornton SN. Sodium intake and vascular stiffness in hypertension. *Hypertension* 2009;54:203-9.
202. Sacks FM, Bray GA, Carey VJ, et al. Comparison of weight-loss diets with different compositions of fat, protein, and carbohydrates. *N Engl J Med* 2009;360:859-73.
203. Dalle Grave R, Calugi S, Gavasso I, El Ghoch M, Marchesini G. A randomized trial of energy-restricted high-protein versus high-carbohydrate, low-fat diet in morbid obesity. *Obesity* 2013;21:1774-81.
204. Mozaffarian D, Appel LJ, Van Horn L. Components of a cardioprotective diet: new insights. *Circulation* 2011;123:2870-91.
205. Eckel RH, Jakicic JM, Ard JD, et al. 2013 AHA/ACC Guideline on lifestyle management to reduce cardiovascular risk: a report of the American College of Cardiology/American Heart Association Task Force on practice guidelines. *Circulation* 2013 Nov 12 [Epub ahead of print].
206. Blumenthal JA, Babyak MA, Hinderliter A, et al. Effects of the DASH diet alone and in combination with exercise and weight loss on blood pressure and cardiovascular biomarkers in men and women with high blood pressure: the ENCORE study. *Arch Intern Med* 2010;170:126-35.
207. Estruch R, Martinez-Gonzalez MA, Corella D, et al.; PREDIMED Study Investigators. Effects of a Mediterranean-style diet on cardiovascular risk factors: a randomized trial. *Ann Intern Med* 2006;145:1-11.
208. Bao Y, Han J, Hu FB, et al. Association of nut consumption with total and cause-specific mortality. *N Engl J Med* 2013;369:2001-11.
209. Puddey IB, Beilin LJ, Rakic V. Alcohol, hypertension and the cardiovascular system: a critical appraisal. *Addiction Biology* 1997;2:159-70.
210. Wei M, Kampert JB, Barlow CE, et al. Relationship between low cardiovascular fitness and mortality in normal-weight, overweight, and obese men. *JAMA* 1999;282:1547-53.
211. Hu FB, Willet WC, Li T, Stampfer MJ, Colditz GA, Manson JE. Adiposity as compared with physical activity in predicting mortality among women. *N Engl J Med* 2004;351:2694-703.
212. Whelton SP, Chin A, Xin X, He J. Effect of aerobic exercise on blood pressure: a meta-analysis of randomized, controlled trials. *Ann Intern Med* 2002;136:493-503.
213. Jensen MD, Ryan DH, Apovian CM, et al. 2013 AHA/ACC/TOS Guideline for the management of overweight and obesity in adults: a report of the American College of Cardiology/American Heart Association Task Force on Practice Guidelines and the Obesity Society. *Circulation* 2013 Nov 12 [Epub ahead of print].
214. Ziccardi P, Nappo F, Giugliano G, et al. Reduction of inflammatory

- cytokine concentrations and improvement of endothelial functions in obese women after weight loss over one year. *Circulation* 2002;105:804-9.
215. Azadbakht L, Mirmiran P, Esmailzadeh A, Azizi T, Azizi F. Beneficial effects of a Dietary Approaches to Stop Hypertension eating plan on features of the metabolic syndrome. *Diabetes Care* 2005;28:2823-31.
216. Hainer V, Toplak H, Mitrakou A. Treatment modalities of obesity: what fits whom. *Diabetes Care* 2008;31(Suppl 2):S269-77.
217. Dansinger ML, Tatsioni A, Wong JB, Chung M, Balk EM. Meta-analysis: the effect of dietary counseling for weight loss. *Ann Intern Med* 2007;147:41-50.
218. Pirozzo S, Summerbell C, Cameron C, Glasziou P. Advice on low-fat diets for obesity. *Cochrane Database Syst Rev* 2002;(2):CD003640.
219. Greenberg I, Stampfer MJ, Schwarzfuchs D, Shai I; DIRECT Group. Adherence and success in long-term weight loss diets: the dietary intervention randomized controlled trial (DIRECT). *J Am Coll Nutr* 2009;28:159-68.
220. Ayyad C, Andersen T. Long-term efficacy of dietary treatment of obesity: a systematic review of studies published between 1931 and 1999. *Obes Rev* 2000;1:113-9.
221. Heymsfield SB, van Mierlo CA, van der Knaap HC, Heo M, Frier HI. Weight management using a meal replacement strategy: meta and pooling analysis from six studies. *Int J Obes Relat Metab Disord* 2003;27:537-49.
222. Greenwald A. Current nutritional treatments of obesity. *Adv Psychosom Med* 2006;27:24-41.
223. Reisin E, Weir MR, Falkner B, et al. Lisinopril versus hydrochlorothiazide in obese hypertensive patients: a multicenter placebo-controlled trial. Treatment in Obese Patients With Hypertension (TROPHY) Study Group. *Hypertension* 1997;30(1 Pt 1):140-5.
224. Galletti F, Fasano ML, Ferrara LA, Groppi A, Montagna M, Mancini M. Obesity and beta-blockers: influence of body fat on their kinetics and cardiovascular effects. *J Clin Pharmacol* 1989;29:212-6.
225. Hollenberg NK, Parving HH, Viberti G, et al. Albuminuria response to very high-dose valsartan in type 2 diabetes mellitus. *J Hypertens* 2007;25:1921-6.
226. Pitt B, Poole-Wilson PA, Segal R, et al. Effect of losartan compared with captopril on mortality in patients with symptomatic heart failure: randomised trial - the Losartan Heart Failure Survival Study ELITE II. *Lancet* 2000;355:1582-7.
227. Lewis EJ, Hunsicker LG, Clarke WR, et al.; Collaborative Study Group. Renoprotective effect of the angiotensin-receptor antagonist irbesartan in patients with nephropathy due to type 2 diabetes. *N Engl J Med* 2001;345:851-60.
228. Schrader J, Luders S, Kulschewski A, et al.; MOSES Study Group. Morbidity and mortality after stroke, eprosartan compared with nitrendipine for secondary prevention: principal results of a prospective randomized controlled study (MOSES). *Stroke* 2005;36:1218-26.
229. Sarzani R, Dessi-Fulgheri P, Rappelli A. Angiotensin receptor blockers: dose does matter. *J Hypertens* 2008;26:607-8.
230. Go AS, Bauman MA, Coleman King SM, et al. An effective approach to high blood pressure control: a science advisory from the American Heart Association, the American College of Cardiology, and the Centers for Disease Control and Prevention. *Hypertension* 2014;63:878-85.
231. Giacchetti G, Faloia E, Mariniello B, et al. Overexpression of the renin-angiotensin system in human visceral adipose tissue in normal and overweight subjects. *Am J Hypertens* 2002;15:381-8.
232. Giacchetti G, Sechi LA, Griffin CA, Don BR, Mantero F, Schambelan M. The tissue renin-angiotensin system in rats with fructose-induced hypertension: overexpression of type 1 angiotensin II receptor in adipose tissue. *J Hypertens* 2000;18:695-702.
233. Strazzullo P, Galletti F. Impact of the renin-angiotensin system on lipid and carbohydrate metabolism. *Curr Opin Nephrol Hypertens* 2004;13:325-32.
234. Galletti F, Strazzullo P, Capaldo B, et al. Controlled study of the effect of angiotensin converting enzyme inhibition versus calcium-entry blockade on insulin sensitivity in overweight hypertensive patients: Trandolapril Italian Study (TRIS). *J Hypertens* 1999;17:439-45.
235. Reneland R, Alvarez E, Andersson PE, Haenni A, Byberg L, Lithell H. Induction of insulin resistance by beta-blockade but not ACE-inhibition: long-term treatment with atenolol or trandolapril. *J Hum Hypertens* 2000;14:175-80.
236. Reisin E, Jack AV. Obesity and hypertension: mechanisms, cardio-renal consequences, and therapeutic approaches. *Med Clin North Am* 2009;93:733-51.
237. Weir MR, Reisin E, Falkner B, Hutchinson HG, Sha L, Tuck ML. Nocturnal reduction of blood pressure and the antihypertensive response to a diuretic or angiotensin converting enzyme inhibitor in obese hypertensive patients. TROPHY Study Group. *Am J Hypertens* 1998;11(8 Pt 1):914-20.
238. Bakris G, Molitch M, Hewkin A, et al.; STAR Investigators. Differences in glucose tolerance between fixed-dose antihypertensive drug combinations in people with metabolic syndrome. *Diabetes Care* 2006;29:2592-7.
239. Schinner S, Willenberg HS, Krause D, et al. Adipocyte-derived products induce the transcription of the StAR promoter and stimulate aldosterone and cortisol secretion from adrenocortical cells through the Wnt-signaling pathway. *Int J Obes* 2007;31:864-70.
240. Mancia G, Laurent S, Agabiti-Rosei E, et al. Reappraisal of European guidelines on hypertension management: a European Society of Hypertension Task Force document. *Blood Press* 2009;18:308-47.
241. Bordicchia M, Pocognoli A, D'Anzeo M, et al. Nebivolol induces, via β_3 adrenergic receptor, lipolysis, uncoupling protein 1, and reduction of lipid droplet size in human adipocytes. *J Hypertens* 2014;32:389-96.

L'ipertensione nel paziente obeso:
raccomandazioni SIIA-SIO

242. Sowers JR, Whaley-Connell A, Epstein M. The emerging clinical implications of the role of aldosterone in the metabolic syndrome and resistant hypertension. *Ann Intern Med* 2009;150:776-83.
243. Abolghasmi R, Taziki O. Efficacy of low dose spironolactone in chronic kidney disease with resistant hypertension. *Saudi J Kidney Dis Transpl* 2011;22:75-8.
244. Newton-Cheh C, Guo CY, Gona P, et al. Clinical and genetic correlates of aldosterone-to-renin ratio and relations to blood pressure in a community sample. *Hypertension* 2007;49:846-56.
245. Jamerson K, Weber MA, Bakris GL, et al.; ACCOMPLISH Trial Investigators. Benazepril plus amlodipine or hydrochlorothiazide for hypertension in high-risk patients. *N Engl J Med* 2008;359:2417-28.
246. Weber MA, Jamerson K, Bakris GL, et al. Effects of body size and hypertension treatments on cardiovascular event rates: subanalysis of the ACCOMPLISH randomised controlled trial. *Lancet* 2013;381:537-45.
247. Strazzullo P, Galletti F, Barba G. Altered renal handling of sodium in human hypertension: short review of the evidence. *Hypertension* 2003;41:1000-5.
248. Strazzullo P, Barba G, Cappuccio FP, et al. Altered renal sodium handling in men with abdominal adiposity: a link to hypertension. *J Hypertens* 2001;19:2157-64.
249. Barbato A, Galletti F, Iacone R, et al. Predictors of resistant hypertension in an unselected sample of an adult male population in Italy. *Intern Emerg Med* 2012;7:343-51.
250. Kasiske BL, Ma JZ, Kalil RS, Louis TA. Effects of antihypertensive therapy on serum lipids. *Ann Intern Med* 1995;122:133-41.
251. Jacob S, Rett K, Henriksen EJ. Antihypertensive therapy and insulin sensitivity: do we have to redefine the role of beta-blocking agents? *Am J Hypertens* 1998;11:1258-65.
252. Haenni A, Lithell H. Treatment with a beta-blocker with beta2-agonism improves glucose and lipid metabolism in essential hypertension. *Metabolism* 1994;43:455-61.
253. Bangalore S, Parkar S, Grossman E, Messerli FH. A meta-analysis of 94,492 patients with hypertension treated with beta blockers to determine the risk of new-onset diabetes mellitus. *Am J Cardiol* 2007;100:1254-62.
254. Volpe M, Ambrosioni E, Borghi C, et al. Strategie per migliorare il controllo della pressione arteriosa in Italia: dalla stratificazione del rischio cardiovascolare globale alla terapia di combinazione. Documento di indirizzo 2012 della Società Italiana dell'Ipertensione Arteriosa (SIIA). *G Ital Cardiol* 2012;13:853-60.
255. James PA, Oparil S, Carter BL, et al. 2014 evidence-based guideline for the management of high blood pressure in adults: report from the Panel Members appointed to the Eighth Joint National Committee (JNC 8). *JAMA* 2014;311:507-20.
256. de Champlain J. Do angiotensin II antagonists provide benefits beyond blood pressure reduction? *Adv Ther* 2005;22:117-36.
257. Opie LH, Schall R. Old antihypertensives and new diabetes. *J Hypertens* 2004;22:1453-8.
258. Erlich Y, Rosenthal T. Contribution of bradykinin to the beneficial effects of ramipril in the fructose-fed rat. *J Cardiovasc Pharmacol* 1998;31:581-4.
259. Ura N, Higashiura K, Shimamoto K. The mechanisms of insulin sensitivity improving effects of angiotensin converting enzyme inhibitor. *Immunopharmacology* 1999;44:153-9.
260. Jandeleit-Dahm KA, Tikellis C, Reid CM, Johnston CI, Cooper ME. Why blockade of the renin-angiotensin system reduces the incidence of new-onset diabetes. *J Hypertens* 2005;23:463-73.
261. Ramracheya RD, Muller DS, Wu Y, et al. Direct regulation of insulin secretion by angiotensin II in human islets of Langerhans. *Diabetologia* 2006;49:321-31.
262. Chu KY, Lau T, Carlsson PO, Leung PS. Angiotensin II type 1 receptor blockade improves beta-cell function and glucose tolerance in a mouse model of type 2 diabetes. *Diabetes* 2006;55:367-74.
263. Hsieh PS, Tai YH, Loh CH, Shih KC, Cheng WT, Chu CH. Functional interaction of AT1 and AT2 receptors in fructose-induced insulin resistance and hypertension in rats. *Metabolism* 2005;54:157-64.
264. Ran J, Hirano T, Adachi M. Angiotensin II type 1 receptor blocker ameliorates overproduction and accumulation of triglyceride in the liver of Zucker fatty rats. *Am J Physiol Endocrinol Metab* 2004;287:E227-32.
265. Henriksen EJ, Jacob S. Angiotensin converting enzyme inhibitors and modulation of skeletal muscle insulin resistance. *Diabetes Obes Metab* 2003;5:214-22.
266. Takai S, Kirimura K, Jin D, Muramatsu M, Yoshikawa K, Mino Y, Miyazaki M. Significance of angiotensin II receptor blocker lipophilicities and their protective effect against vascular remodeling. *Hypertens Res* 2005;28:593-600.
267. Di Filippo C, Lampa E, Tufariello E, et al. Effects of irbesartan on the growth and differentiation of adipocytes in obese Zucker rats. *Obes Res* 2005;13:1909-14.
268. Schupp M, Janke J, Clasen R, Unger T, Kintscher U. Angiotensin type 1 receptor blockers induce peroxisome proliferator-activated receptor-gamma activity. *Circulation* 2004;109:2054-7.
269. Ran J, Hirano T, Fukui T, et al. Angiotensin II infusion decreases plasma adiponectin level via its type 1 receptor in rats: an implication for hypertension-related insulin resistance. *Metabolism* 2006;55:478-88.
270. Yenicesu M, Yilmaz MI, Caglar K, et al. Blockade of the renin-angiotensin system increases plasma adiponectin levels in type-2 diabetic patients with proteinuria. *Nephron Clin Pract* 2005;99:c115-21.
271. Yusuf S, Teo KK, Pogue J, et al.; ONTARGET Investigators. Telmisartan, ramipril, or both in patients at high risk for vascular events. *N Engl J Med* 2008;358:1547-59.
272. Lindholm LH, Persson M, Alaupovic P, Carlberg B, Svensson A, Samuelsson O. Metabolic outcome during 1 year in newly detected hypertensives: results of the Antihypertensive Treatment and Lipid Profile in a North of Sweden

- Efficacy Evaluation (ALPINE study). *J Hypertens* 2003;21:1563-74.
273. Moser M. Diuretics should continue to be one of the preferred initial therapies in the management of hypertension: the argument for. *J Clin Hypertens* 2005;7:111-6.
274. Wilhelmssen L, Berglund G, Elmfeldt D, et al. Beta-blockers versus diuretics in hypertensive men: main results from the HAPPHY trial. *J Hypertens* 1987;5:561-72.
275. Ames RP. Hyperlipidemia in hypertension: causes and prevention. *Am Heart J* 1991;122(4 Pt 2):1219-24.
276. DeFronzo RA, Sherwin RS, Dillingham M, Hender R, Tamborlane WV, Felig P. Influence of basal insulin and glucagon secretion on potassium and sodium metabolism. Studies with somatostatin in normal dogs and in normal and diabetic human beings. *J Clin Invest* 1978;61:472-9.
277. Carter BL, Einhorn PT, Brands M, et al. Thiazide-induced dysglycemia: call for research from a working group from the National Heart, Lung, and Blood Institute. *Hypertension* 2008;52:30-6.
278. Agarwal R. Hypertension, hypokalemia, and thiazide-induced diabetes: a 3-way connection. *Hypertension* 2008;52:1012-13.
279. Pickkers P, Schachter M, Hughes AD, Feher MD, Sever PS. Thiazide-induced hyperglycaemia: a role for calcium-activated potassium channels? *Diabetologia* 1996;39:861-4.
280. Zillich AJ, Garg J, Basu S, Bakris GL, Carter BL. Thiazide diuretics, potassium, and the development of diabetes: a quantitative review. *Hypertension* 2006;48:219-24.
281. Kostis JB, Wilson AC, Freudenberg RS, Cosgrove NM, Pressel SL, Davis BR; SHEP Collaborative Research Group. Long-term effect of diuretic-based therapy on fatal outcomes in subjects with isolated systolic hypertension with and without diabetes. *Am J Cardiol* 2005;95:29-35.
282. Reungjui S, Pratipanawatr T, Johnson RJ, Nakagawa T. Do thiazides worsen metabolic syndrome and renal disease? The pivotal roles for hyperuricemia and hypokalemia. *Curr Opin Nephrol Hypertens* 2008;17:470-6.
283. Johnson MW, Mitch WE. The risks of asymptomatic hyperuricaemia and the use of uricosuric diuretics. *Drugs* 1981;21:220-5.
284. Psaty BM, Lumley T, Furberg CD, et al. Health outcomes associated with various antihypertensive therapies used as first-line agents: a network meta-analysis. *JAMA* 2003;289:2534-44.
285. Ueshiba H, Miyachi Y. Effects of the long-acting calcium channel blockers, amlodipine, manidipine and cilnidipine on steroid hormones and insulin resistance in hypertensive obese patients. *Intern Med* 2004;43:561-5.
286. Fogari R, Derosa G, Zoppi A, et al. Effects of manidipine/delapril versus olmesartan/hydrochlorothiazide combination therapy in elderly hypertensive patients with type 2 diabetes mellitus. *Hypertens Res* 2008;31:43-50.
287. Abernethy DR, Schwartz JB. Calcium-antagonist drugs. *N Engl J Med* 1999;341:1447-57.
288. Gojanovic B, Feihl F, Liaudet L, Waeber B. Concomitant calcium entry blockade and inhibition of the renin-angiotensin system: a rational and effective means for treating hypertension. *J Renin Angiotensin Aldosterone Syst* 2008;9:1-9.
289. Sharma AM, Janke J, Gorzelnik AK, Engeli S, Luft FC. Angiotensin blockade prevents type 2 diabetes by formation of fat cells. *Hypertension* 2002;40:609-11.
290. Martinez Martin FJ. Manidipine (but not amlodipine), increases insulin sensitivity and rises plasma adiponectin concentrations in hypertensive non-diabetic patients with metabolic syndrome and impaired fasting glucose [abstract]. *Diabetologia* 2005;48(Suppl 1):374.
291. Fogari R, Derosa G, Zoppi A, et al. Effect of delapril/manidipine vs olmesartan/hydrochlorothiazide combination on insulin sensitivity and fibrinogen in obese hypertensive patients. *Intern Med* 2008;47:361-6.
292. Frishman WH. A historical perspective on the development of beta-adrenergic blockers. *J Clin Hypertens* 2007;9(4 Suppl 3):19-27.
293. Jacob S, Rett K, Wicklmayr M, Agrawal B, Augustin HJ, Dietze GJ. Differential effect of chronic treatment with two beta-blocking agents on insulin sensitivity: the carvedilol-metoprolol study. *J Hypertens* 1996;14:489-94.
294. Lithell HO. Effect of antihypertensive drugs on insulin, glucose, and lipid metabolism. *Diabetes Care* 1991;14:203-9.
295. Aberg H, Morlin C, Lithell H. Different long-term metabolic effects of enalapril and atenolol in patients with mild hypertension. EGTA Group. *J Hum Hypertens* 1995;9:149-53.
296. Jacob S, Klimm HJ, Rett K, Helsing K, Haring HU, Godicke J. Effects of moxonidine vs metoprolol on blood pressure and metabolic control in hypertensive subjects with type 2 diabetes. *Exp Clin Endocrinol Diabetes* 2004;112:315-22.
297. Propranolol or hydrochlorothiazide alone for the initial treatment of hypertension. IV. Effect on plasma glucose and glucose tolerance. Veterans Administration Cooperative Study Group on Antihypertensive Agents. *Hypertension* 1985;7(6 Pt 1):1008-16.
298. Gress TW, Nieto FJ, Shahar E, Wofford MR, Brancati FL. Hypertension and antihypertensive therapy as risk factors for type 2 diabetes mellitus. Atherosclerosis Risk in Communities Study. *N Engl J Med* 2000;342:905-12.
299. Dahlof B, Devereux RB, Kjeldsen SE, et al; LIFE Study Group. Cardiovascular morbidity and mortality in the Losartan Intervention For endpoint reduction in hypertension study (LIFE): a randomised trial against atenolol. *Lancet* 2002;359:995-1003.
300. Pepine CJ, Handberg EM, Cooper-DeHoff RM, et al; INVEST Investigators. A calcium antagonist vs a non-calcium antagonist hypertension treatment strategy for patients with coronary artery disease. The International Verapamil-Trandolapril Study (INVEST): a randomized controlled trial. *JAMA* 2003;290:2805-16.
301. Gupta AK, Dahlof B, Dobson J, Sever PS, Wedel H, Poulter NR; Anglo-Scandinavian Cardiac Outcomes Trial Investigators, et al. Determinants of new-onset diabetes

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- among 19,257 hypertensive patients randomized in the Anglo-Scandinavian Cardiac Outcomes Trial - Blood Pressure Lowering Arm and the relative influence of antihypertensive medication. *Diabetes Care* 2008;31:982-8.
302. Owada A, Suda S, Hata T, Miyake S. The effects of bisoprolol, a selective beta1-blocker, on glucose metabolism by long-term administration in essential hypertension. *Clin Exp Hypertens* 2001;23:305-16.
303. Joglekar SJ, Jaguste V, Nanivadekar AS. Prazosin GITS vs atenolol in patients with hypertension and normal lipid profile: a randomized, controlled multicenter study. *Hyderabad Hypertension Study Group. J Assoc Physicians India* 1998;(Suppl 1):41-51.
304. Lakshman MR, Reda DJ, Materson BJ, Cushman WC, Freis ED. Diuretics and beta-blockers do not have adverse effects at 1 year on plasma lipid and lipoprotein profiles in men with hypertension. Department of Veterans Affairs Cooperative Study Group on Antihypertensive Agents. *Arch Intern Med* 1999;159:551-8.
305. Daae LN, Westlie L. A 5-year comparison of doxazosin and atenolol in patients with mild-to-moderate hypertension: effects on blood pressure, serum lipids, and coronary heart disease risk. *Blood Press* 1998;7:39-45.
306. Johnston GD, Vyssoulis G, Feely J, Holden RD, Radley DR. Effect of celiprolol and metoprolol on lipids, fibrinogen and airways function in hyperlipidaemic hypertensives: a randomised double-blind long-term parallel group trial. *J Hum Hypertens* 1995;9:123-9.
307. Fogari R, Zoppi A, Pasotti C, et al. Plasma lipids during chronic antihypertensive therapy with different beta-blockers. *J Cardiovasc Pharmacol* 1989;14(Suppl 7):S28-32.
308. Saunders E, Curry C, Hinds J, et al. Labetalol compared with propranolol in the treatment of black hypertensive patients. *J Clin Hypertens* 1987;3:294-302.
309. Sarafidis PA, Bakris GL. Antihypertensive treatment with beta-blockers and the spectrum of glycaemic control. *QJM* 2006;99:431-6.
310. De Fronzo RA, Mandarino L, Ferrannini E. Metabolic and molecular pathogenesis of type 2 diabetes mellitus. In: De Fronzo RA, Ferrannini E, Keen H, Zimmet P, eds. *International Textbook of Diabetes Mellitus*, 3rd ed. Chichester, UK: John Wiley & Sons, 2004:359-73.
311. Efficacy of atenolol and captopril in reducing risk of macrovascular and microvascular complications in type 2 diabetes: UKPDS 39. UK Prospective Diabetes Study Group. *BMJ* 1998;317:713-20.
312. Rossner S, Taylor CL, Byington RP, Furburg CD. Long term propranolol treatment and changes in body weight after myocardial infarction. *BMJ* 1990;300:902-3.
313. Pedersen ME, Cockcroft JR. The vasodilatory beta-blockers. *Curr Hypertens Rep* 2007;9:269-77.
314. Agabiti Rosei E, Rizzoni D. Metabolic profile of nebivolol, a beta-adrenoceptor antagonist with unique characteristics. *Drugs* 2007;67:1097-107.
315. Celik T, Iyisoy A, Kursaklioglu H, et al. Comparative effects of nebivolol and metoprolol on oxidative stress, insulin resistance, plasma adiponectin and soluble P-selectin levels in hypertensive patients. *J Hypertens* 2006;24:591-6.
316. Bakris GL, Fonseca V, Katholi RE, et al.; GEMINI Investigators. Metabolic effects of carvedilol vs metoprolol in patients with type 2 diabetes mellitus and hypertension: a randomized controlled trial. *JAMA* 2004;292:2227-36.
317. Kusljagic Z, Divkovic K, Barakovic F, et al. Effects of nebivolol on artery hypertension - multicenter study Bosnia and Herzegovina. *Bosn J Basic Med Sci* 2005;5:42-51.
318. Schmidt AC, Graf C, Brixius K, Scholze J. Blood pressure-lowering effect of nebivolol in hypertensive patients with type 2 diabetes mellitus: the YESTONO study. *Clin Drug Investig* 2007;27:841-9.
319. Ohman KP, Weiner L, von Schenck H, Karlberg BE. Antihypertensive and metabolic effects of nifedipine and labetalol alone and in combination in primary hypertension. *Eur J Clin Pharmacol* 1985;29:149-54.
320. Siwach SB, Dahiya SS, Seth S, Seth RK, Sharma D. Effect of atenolol and labetalol on serum lipids. *J Assoc Physicians India* 1993;41:293-4.
321. Packer M. Beta-adrenergic blockade in chronic heart failure: principles, progress, and practice. *Prog Cardiovasc Dis* 1998;41(1 Suppl 1):39-52.
322. Peter P, Martin U, Sharma A, Dunne F. Effect of treatment with nebivolol on parameters of oxidative stress in type 2 diabetics with mild to moderate hypertension. *J Clin Pharm Ther* 2006;31:153-9.
323. Padwal R, Klarenbach S, Wiebe N, et al. Bariatric surgery: a systematic review of the clinical and economic evidence. *J Gen Intern Med* 2011;26:1183-94.
324. Terranova L, Busetto L, Vestri A, Zappa MA. Bariatric surgery: cost-effectiveness and budget impact. *Obes Surg* 2012;22:646-53.
325. Buchwald H, Avidor Y, Braunwald E, et al. Bariatric surgery: a systematic review and meta-analysis. *JAMA* 2004;292:1724-37.
326. Hinojosa MW, Varela JE, Smith BR, Che F, Nguyen NT. Resolution of systemic hypertension after laparoscopic gastric bypass. *J Gastrointest Surg* 2009;13:793-7.
327. Sjöström L, Lindroos AK, Peltonen M, et al.; Swedish Obese Subjects Study Scientific Group. Lifestyle, diabetes, and cardiovascular risk factors 10 years after bariatric surgery. *N Engl J Med* 2004;351:2683-93.
328. Sjöström I, Marbrok K, Sjöström CD, et al.; Swedish Obese Subjects Study. Effects of bariatric surgery on mortality in Swedish obese subjects. *N Engl J Med* 2007;357:741-52.
329. Sjöström CD, Lystig T, Lindroos AK. Impact of weight change, secular trends and ageing on cardiovascular risk factors: 10 year experiences from SOS Study. *Int J Obes* 2011;35:1413-20.
330. Burza MA, Romeo S, Kotronen A, et al. Long-term effect of bariatric surgery on liver enzymes in the Swedish Obese Subjects (SOS) study. *PLoS One* 2013;8:e60495.
331. Vilarrasa N, San José P, García I, et al. Evaluation of bone mineral density loss in morbidly obese women after

- gastric bypass: 3-year follow-up. *Obes Surg* 2011;21:465-72.
332. Scopinaro N, Adami GF, Papadia FS, et al. Effects of biliopancreatic diversion on type 2 diabetes in patients with BMI 25 to 35. *Ann Surg* 2011;253:699-703.
333. Mason EE. The mechanisms of surgical treatment of type 2 diabetes. *Obes Surg* 2005;15:459-61.
334. Mattar SG, Velcu LM, Rabinovitz M, et al. Surgically-induced weight loss significantly improves nonalcoholic fatty liver disease and the metabolic syndrome. *Ann Surg* 2005;242:610-20.
335. Falken Y, Hellstrom PM, Holst JJ, Naslund E. Changes in glucose homeostasis after Roux-en-Y gastric bypass surgery for obesity at day three, two months, and one year after surgery: role of gut peptides. *J Clin Endocrin Metab* 2011;96:2227-35.
336. Madan AK, Orth W, Ternovits CA, Tichansky DS. Metabolic syndrome: yet another co-morbidity gastric bypass helps cure. *Surg Obes Relat Dis* 2006;2:48-51.
337. Batsis JA, Sarr MG, Collazo-Clavell ML, et al. Cardiovascular risk after bariatric surgery for obesity. *Am J Cardiol* 2008;102:930-7.
338. Alsabrook GD, Goodman HR, Alexander JW. Gastric bypass for morbidly obese patients with established cardiac disease. *Obes Surg* 2006;16:1272-7.
339. Lopez-Jimenez F, Bhatia S, Collazo-Clavell ML, Sarr MG, Somers VK. Safety and efficacy of bariatric surgery in patients with coronary artery disease. *Mayo Clin Proc* 2005;80:1157-62.
340. Sugerman HJ, Wolfe LG, Sica DA, Clore JN. Diabetes and hypertension in severe obesity and effects of gastric bypass-induced weight loss. *Ann Surg* 2003;237:751-8.
341. Persell SD. Prevalence of resistant hypertension in the United States, 2003-2008. *Hypertension* 2011;57:1076-80.
342. Weir MR, Hollenberg NK, Zappe DH, et al. Antihypertensive effects of double the maximum dose of valsartan in African-American patients with type 2 diabetes mellitus and albuminuria. *J Hypertens* 2010;28:186-93.
343. Carey AL, Formosa MF, Van Every B, et al. Ephedrine activates brown adipose tissue in lean but not obese humans. *Diabetologia* 2013;56:147-55.
344. Yanovski SZ, Yanovski JA. Long-term drug treatment for obesity: a systematic and clinical review. *JAMA* 2014;311:74-86.
345. Wustmann K, Kucera JP, Scheffers I, et al. Effects of chronic baroreceptor stimulation on the autonomic cardiovascular regulation in patients with drug-resistant arterial hypertension. *Hypertension* 2009;54:530-6.
346. Scheffers IJ, Kroon AA, Schmidli J, et al. Novel baroreflex activation therapy in resistant hypertension: results of a European multi-center feasibility study. *J Am Coll Cardiol* 2010;56:1254-8.
347. Krum H, Schlaich M, Whitbourn R, et al. Catheter-based renal sympathetic denervation for resistant hypertension: a multicentre safety and proof-of-principle cohort study. *Lancet* 2009;373:1275-81.
348. Esler MD, Krum H, Sobotka PA, Schlaich MP, Schmieder RE, Bohm M; Symplicity HTN-2 Investigators. Renal sympathetic denervation in patients with treatment-resistant hypertension (the Symplicity HTN-2 Trial): a randomised controlled trial. *Lancet* 2010;376:1903-9.
349. Symplicity HTN-1 Investigators. Catheter-based renal sympathetic denervation for resistant hypertension: durability of blood pressure reduction out to 24 months. *Hypertension* 2011;57:911-7.
350. Volpe M, Agabiti-Rosei E, Ambrosioni E, et al. Denervazione delle arterie renali nel trattamento dell'ipertensione arteriosa resistente: definizione della patologia, selezione dei pazienti e descrizione della procedura. Documento di Indirizzo 2012 della Società Italiana dell'Ipertensione Arteriosa (SIIA). *G Ital Cardiol* 2012;13:846-52.
351. Schmieder RE, Redon J, Grassi G, et al.; European Society of Hypertension. Updated ESH position paper on interventional therapy of resistant hypertension. *EuroIntervention* 2013;9(Suppl R):R58-66.