**Длина теломер и атеросклероз**

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**Список используемой литературы:**

1. Lusis AJ. Atherosclerosis. Nature 2000; 407:233–241.
2. Willeit P, Willeit J, Brandstatter A, Ehrlenbach S. et al. Cellular aging reflected by leukocyte telomere length predicts advanced atherosclerosis and cardiovascular disease risk. Arterioscler Thromb Vasc Biol 2010; 30:1649–1656.
3. Drapkina OM, Shepel RN. Telomeres and telomerase complex. The main clinical manifestation of genetic malfunctioning. Cardiovascular Therapy and Prevention 2015; 14(1): 70-77. Russian (Драпкина О.М., Шепель Р.Н. Теломеры и теломеразный комплекс. Основные клинические проявления генетического сбоя. Кардиоваскулярная терапия и профилактика 2015, 14(1): 70-77).
4. Grabowski P, Hultdin M, Karlsson K, et al. Telomere length as a prognostic parameter in chronic lymphocytic leukemia with special reference to VH gene mutation status. Blood 2005; 105:4807–4812.
5. Blackburn EH. Switching and signaling at the telomere. Cell 2001; 106(6):661-73
6. de Lange T. Shelterin: the protein complex that shapes and safeguards human telomeres. Genes Dev 2005; 19(18):2100-2110.
7. Palm W, de Lange T. How shelterin protects mammalian telomeres. Annu Rev Genet 2008; 42:301-34.
8. De Boeck G, Forsyth RG, Praet M, Hogendoorn PC. Telomere-associated proteins: cross-talk between telomere maintenance and telomere-lengthening mechanisms. J Pathol 2009; 217:327–344.
9. Rose A, Patel S, Meier I. The plant nuclear envelope. Planta 2004; 218: 327—336.
10. Pennaneach V, Putnam C D, Kolodner RD. Chromosome healing by de novo telomere addition in Saccharomyces cerevisiae. Mol. Microbiol 2006; 59:1357—1368.
11. Pedram M, Sprung C N, Gao Q, Reynolds G E, Murnane JP. Telomere position effect and silencing of transgenes near telomeres in the mouse. Mol. Cell. Biol 2006; 26:1865—1878.
12. Olovnik AI. A theory of marginotomy: the incomplete copying of template margin in enzymatic synthesis of polynucleotides and biological significance of the phenomenon. J. Theor. Biol 1973; 41:181—190.
13. Brouilette SW, Whittaker A, Stevens SE, van der Harst P, et al. Telomere length is shorter in healthy offspring of subjects with coronary artery disease: support for the telomere hypothesis. Heart 2008; 94:422–425.
14. Stewart JA, Chaiken MF, Wang F, Price CM. Maintaining the end: Role of telomere proteins in end-protection, telomere replication and length regulation. Mutat Res: Fundam Mol Mech Mutagen 2011,doi:10.1016/j.mrfmmm.2011.08.011.
15. Gilson E, Segal-Bendirdjian E. The telomere story or the triumph of an open-minded research. Biochimie 2010; 92:321–326.
16. Von Zglinicki T. Oxidative stress shortens telomeres. Trends Biochem Sci 2002; 27:339–344.
17. De Meyer T, Rietzschel ER, De Buyzere ML, et al. Systemic telomere length and preclinical atherosclerosis: the Asklepios Study. Eur Heart J 2009; 30:3074–3081.
18. Kawanishi S, Oikawa S. Mechanism of telomere shortening by oxidative stress. Ann NY Acad Sci 2004; 1019:278–284.
19. Cai H, Harrison DG. Endothelial dysfunction in cardiovascular disease: the role of oxidant stress. Circ Res 2000; 87:840–844
20. Burke A, Fitzgerald GA. Oxidative stress and smoking-induced vascular injury. Prog Cardiovasc Dis 2003; 46:79–90.
21. Valdes AM, Andrew T, Gardner JP, et al. Obesity, cigarette smoking,and telomere length in women. Lancet 2005; 366:662 – 664.
22. Morla M, Busquets X, Pons J, Sauleda J, MacNee W, Agusti AG.Telomere shortening in smokers with and without COPD. Eur Respir J 2006; 27:525 – 528.
23. J. Huzen, L. S. M. Wong, D. J. van Veldhuisen, N. J. Samanib et al. Telomere length loss due to smoking and metabolic traits. Journal of Internal Medicine 2014; 275(2):155-163.
24. Drapkina O.M., Shepel R.N. The modern conception of the proper role of telomeres and telomerase in pathogenesis of hypertension. Arterial hypertension 2013; 19(4):290-298. Russian (Драпкина О.М., Шепель Р.Н. Современные представления о роли теломер и теломеразы в патогенезе гипертонической болезни. Артериальная гипертензия 2013, 19(4):290-298.)
25. Jeanclos E, Schork NJ, Kyvik KO, Kimura M, Skurnick JH, Aviv A.Telomere length inversely correlates with pulse pressure and is highly familial. Hypertension 2000; 36:195–200.
26. Benetos A, Okuda K, Lajemi M, et al. Telomere length as an indicator of biological aging: the gender effect and relation with pulse pressure and pulse wave velocity. Hypertension 2001; 37:381-385.
27. Ronti T, Lupattelli G, Mannarino E. The endocrine function of adipose tissue. Clin Endocrinol 2006; 64(4):355–365.
28. Gardner JP, Shengxu L, Srinivasan SR, Wei C, et al. Rise in insulin resistance is associated with escalated telomere attrition. Circulation 2005; 111:2171–2177.
29. Su Y, Liu XM, Sun YM, et al. The relationship between endothelial dysfunction and oxidative stress in diabetes and pre-diabetes. Int J Clin Pract 2008; 62:877–882.
30. Brodsky SV, Gealekman O, Chen J, Zhang F, et al. Prevention and reversal of premature endothelial cell senescence and vasculopathy in obesity-induced diabetes by ebselen. Circ Res 2004; 94:377–384.
31. Adaikalakoteswari A, Balasubramanyam M, Mohan V. Telomere shortening occurs in Asian Indian Type 2 diabetic patients. Diabet Med 2005; 22:1151–1156.
32. Zee RL, Castonguay AJ, Barton NS, Germer S, Martin M. Mean leucocyte telomere length shortening and type 2 diabetes mellitus : a case-control study. Translational Res 2010; 155:166–169.
33. Salpea KD, Talmud PJ, Cooper JA, Maubaret CG, Stephens JW, Abelak K, Humphries SE. Association of telomere length with type 2 diabetes, oxidative stress and UCP2 gene variation. Atherosclerosis. 2010; 209:42–50.
34. Olivieri F, Lorenzi M, Antonicelli R, et al. Leukocyte telomere shortening in elderly Type2DM patients with previous myocardial infarction. Atherosclerosis 2009; 206(2): 588-593.
35. Fyhrquist F, Tiitu A, Saijonmaa O, et al. Telomere Length and progression of diabetic nephropathy in patients with type 1 diabetes. J Intern Med 2010; 267(3):278-286.
36. Tentolouris N, Nzietchueng R, Cattan V, et al. (2007). White blood cells Telomere Length is shorter in males with type 2 diabetes and microalbuminuria. Diabetes Care 2007; 30(11):2909-2915.
37. Adaikalakoteswari A, Balasubramanyam M, Ravikumar R, Deepa R, Mohan V. Association of telomere shortening with impaired glucose tolerance and diabetic macroangiopathy. Atherosclerosis 2007; 195: 83–89.
38. Demissie S, Levy D, Benjamin EJ. et al. Insulin resistance, oxidative stress, hypertension, and leukocyte telomere length in men from the Framingham Heart Study. Aging Cell 2006; 5:325–330.
39. Al-Attas O, Al-Daghri N, Bamakhramah A, et al. Telomere length in relation to insulin resistance, inflammation and obesity among Arab youth. Acta Paediatr 2010; 99:896–899.
40. Daubenmiera J, Linb J, Blackburnb E, Hechta F. Changes in stress, eating, and metabolic factors are related to changes in telomerase activity in a randomized mindfulness intervention pilot study. Psychoneuroendocrinology 2012; 37(7): 917–928.
41. Zhu H, Belcher M, van der Harst P. Healthy aging and disease: role for telomere biology? Clin Sci 2011; 120:427–440.
42. Drapkina O.M., Shepel R.N. Low sodium diet: pros and cons. Ration Pharmacother Cardiol 2015; 11(2):190-195. Russian (Драпкина О.М., Шепель Р.Н. Диета с низким содержанием поваренной соли: за и против. Рациональная фармакотерапия в кардиологии 2015, 11(2):190-195).
43. Cherkas LF, Hunkin JL, Kato BS, Richards J B, Gardner JP, Surdulescu GL, I Aviv A. The association between physical activity in leisure time and leukocyte telomere length. Archives of Internal Medicine 2008; 168:154-158.
44. Krauss J, Farzaneh-Far R, Puterman E, Na B, Lin J, et al. Physical Fitness and Telomere Length in Patients with Coronary Heart Disease: Findings from the Heart and Soul Study. PLoS ONE 2011; 6(11): e26983. oi:10.1371/journal.pone.0026983
45. Denham J, Nelson CP, O’Brien BJ, Nankervis SA, Denniff M, et al. Longer Leukocyte Telomeres Are Аssociated with Ultra-Endurance Exercise Independent of Cardiovascular Risk Factors. PLoS ONE 2013; 8(7): e69377. doi:10.1371/journal.pone.0069377
46. Farzaneh – Far R., Lin J., E.pel E.S., Harris W.S., Blackburn E.H., Whooley M.A. Association of marine omega – 3 fatty acid levels with telomeric aging in patients with coronary heart disease. JAMA 2010; 303: 250–257.
47. Bode-Boger SM, Martens-Lobenhoffer J, Tager M, Schroder H, Scalera F. Aspirin reduces endothelial cell senescence. Biochem Biophys Res Commun 2005; 334:1226–1232.
48. Donnini S, Terzuoli E, Ziche M, Morbidelli L. Sulfhydryl angiotensinconverting enzyme inhibitor promotes endothelial cell survival through nitric-oxide synthase, fibroblast growth factor-2, and telomerase crosstalk. J Pharmacol Exp Ther 2010; 332 (3):776–784.
49. Spyridopoulos I, Haendeler J, Urbich C, et al. Statins enhance migratory capacity by upregulation of the telomere repeat-binding factor TRF2 in endothelial progenitor cells. Circulation 2004; 110:3136–3142.