MEETING ABSTRACT

Heredity and vascular endothelium: focus on young age

Maria E Evseieva*, Alexander J Krivoruchko, Tatiana A Smirnova, Maria V Rostovtseva, Oksana V Sergeeva, Ekaterina A Andreeva

From EPMA-World Congress 2013
Brussels, Belgium. 20-21 September 2013

The actuality
In total mortality in all countries, almost 60% of deaths occur in cardiovascular disease (CVD) of atherosclerotic genesis [1]. It is proved that the roots of these diseases are the thing of the young and even children years of life [2,3], so it is advisable to start prevention in youth, which requires development of prenosological criteria for the diagnosis of age-appropriate.

Objective
To examine the state of the vascular endothelium in young people, taking into account the presence or absence of cases of early CVD in the immediate family.

Material and methods
We investigated 40 students Stavropol State Medical University (16 boys and 24 girls) aged 19 to 22 who were divided into two groups: 1st group - with no family history (12 people) and the 2nd group - with heredity, burdened in the early CVD (28 people). The comparison group - 21 people from the hospital cardiac patients with severe forms of ischemic heart disease. Family history was regarded as burdened by the presence of CVD in the immediate family, like hypertension, stroke, and various forms of ischemic heart disease in men aged up to 55 years for women and 65 years. Blood was tested to estimate the number of desquamated or circulating endothelial cells by the method of J. Hladovec (1978) and a study of the profile of modifiable cardiovascular risk factors was fulfilled. The results were processed statistically using the software package BIOSTAT.

Results
It turned out that the young people from the first group with a favorable inheritance of desquamated endothelial cells by an average of 2.6 ± 0.8, 2 median, mode 1, a maximum of 6 and a minimum of 1. These indicators in the second group of students with family history were equal respectively 5.8 ± 1.2, 4 median, mode 4, a maximum of 20 and a minimum of 2. That is, young people with a poor family history of the number of circulating endothelial cells was 2.2 times greater when compared with their peers who are not relatives of reported cases of early cardiovascular disease. These differences reached a statistically significant level (P ≥ 0.05). It is noteworthy that the number desquamated endothelial cells of patients with coronary artery disease is indicated by an average of 9.8 ± 1.5.

Conclusion
Heredity, burdened by early CVD, at a young age is associated with changes in the vascular wall, vascular endothelial damage expressible with the phenomena of its increased desquamation. It is proved that endothelial dysfunction is the trigger mechanism of atherosclerosis and marker of preclinical stage flow [4,5]. These data are consistent with the results of multicenter studies that indicate a more prominent role unfavorable heredity as a risk factor (RF) of CVD is at a younger age compared to the more mature period of life when important prognostic role is played by modifiable risk factors [6]. The results confirm the importance of BH as screening parameters suitable for the formation of groups of cardiovascular risk among young people in order to carry out effective prevention programs in youth health centers [7] and the departments of medical prevention of student health centers that have recently

* Correspondence: evseieva@mail.ru
Stavropol State Medical University, Stavropol, Russia

© 2014 Evseieva et al; licensee BioMed Central Ltd. This is an Open Access article distributed under the terms of the Creative Commons Attribution License (http://creativecommons.org/licenses/by/2.0), which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited. The Creative Commons Public Domain Dedication waiver (http://creativecommons.org/publicdomain/zero/1.0/) applies to the data made available in this article, unless otherwise stated.
begun to organize themselves quite extensively at various educational institutions the Russian Federation.

Published: 11 February 2014

References
1. Yusuf S, Hawken S, Ounpuu S, et al: Effect of potentially modifiable risk factors associated with myocardial infarction in 52 countries (the INTERHEART Study): case-control study. *Lancet* 2004, 364(9438):937-952.
2. Bertuccio P, Levi F, Lucchini F, Chatenoud L, Bosetti C, Negri E, La Vecchia C: Coronary heart disease and cerebrovascular disease mortality in young adults: recent trends in Europe. *Eur J Cardiovasc Prev Rehabil* 2011, 18:627-634.
3. Krozowski Z. Cardiovascular risk factors and atherosclerosis in young women. Atherosclerosis risk factors in female youngsters (ARFY Study). *Stroke* 2009, 40:1063-1081.
4. Perticone F, Ceravolo R, Ruija A: Prognostic significance of endothelial dysfunction in hypertensive patients. *Circulation* 2001, 104:191-196.
5. ESC / EAS: Guidelines for the management of dyslipidaemias: The Task Force for the management of dyslipidaemias of the European Society of Cardiology (ESC) and the European Atherosclerosis Society (EAS). Developed with the special contribution of: European Association for Cardiovascular Prevention & Rehabilitation. *Eur Heart J* 2011, 32(14):1769-818.
6. O’Donnell M, Xavier D, Liu L, Zhang H, et al: Risk factors for ischaemic and intracerebral haemorrhagic stroke in 22 countries (the INTERSTROKE Study): a case-control study. *Lancet* 2010, 376:12-132.
7. Evseeva ME, Muravieva VN, Eremin MV, Galkova IY, Chudnovsky EV, Mishchenko EA, Rusidi AV: Student Health Center: the main areas of work at this stage. *Prev Med* 2013, 18:12.

doi:10.1186/1878-5085-5-S1-A84
Cite this article as: Evseeva et al: Heredity and vascular endothelium: focus on young age. *EPMA Journal* 2014 5(Suppl 1):A84.