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EDITORIAL POINT OF VIEW

Cardiovascular Risk Prediction: Great Changes are Emerging

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The cardiovascular (cv) risk consists of the equilibrium of a balance. One pan bears the aggression, the other the defense.

The up-to-date calculators of this risk, both European and American take today into consideration the aggression pan only (1,2). The Europeans include the family history in the assessment, without giving to this element a numeric weight. Some papers analyze family history and find arguments to include it in risk assessment, but mainly as an aggressive factor when present, rather than a protective factor when absent (3).

Now come the news. A very serious study published in 2016 (4) developed a genetic cardiovascular risk score (GRS – Genomic Risk Score) based on more than 49 000 single nucleotide polymorphisms (SNP) found in 3 Finrisk cohorts (n=12 676) and in 2 of Framingham Heart Study cohorts (n=3406). These populations were followed for 10-20 years. The GRS improved the cv risk prediction based on traditional risk factors with high statistical significance and independent of these traditional risk factors.

The degree of methylation of the genes promoting lipid species is also considered important as a cv risk factor. The lower the methylation, the lower is the cv risk (5). In this direction, lipidomics analyses are also progressing. Data from a deep analysis in diabetic patients (6) clearly identified lipid species associated independently with a higher risk. The model was prospectively validated (6). Of course, this is an identification of new aggressive factors, but the lack of those species, or a lower methylation of genes promoting some lipid species seem to be a protective factor.

However, in these moment, the European Prevention Guidelines, after analyzing some of the progress, consider that all these findings should be confirmed and than validated with further studies. The European statement is clearly NO (citation: **"The generalized use of DNA-based tests for CVD risk assessment is not recommended - III B"**). The Americans do not present now in this field any statement in their guidelines.

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Some questions are more important than others.

Which genetic tests, to whom to be applied and what is the cost? Of course, as usual, they should be mainly addressed to people in the grey zone and, maybe, to those at apparently low risk.

And another important question is what is the difference between populations regarding these genetic analyses.

I think that, however, the present empty pan of the balance – the genetic defense of an individual against cv aggression – will soon be filled.

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References

1. **Piepoli MF, Hoes AW, Agewall S et al** - 2016 European Guidelines on cardiovascular disease prevention in clinical practice - *European Heart Journal* 2016; 37: 2315–81
2. **David C. 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*. 2014;129[suppl 2]:S49-S73
3. **Veronesi G, Gianfagna F, Gianpaoli S et al** - Improving long-term prediction of first cardiovascular event: the contribution of family history of coronary heart disease and social status - *Prev Med*. 2014;64:75-80
4. **Abraham G, Havulinna AS, Bhalala O et al** – Genomic prediction of coronary artery disease - *European Heart Journal* 2016; 0: 1–12
5. **Guay SP, Brisson D, Lamarche B, et al.** - DNA methylation variations at CETP and LPL gene promoter loci: new molecular biomarkers associated with blood lipid profile variability. *Atherosclerosis* 2013;228: 413-20
6. **Alshehry, Z. H, Mundra PA, Barlow CK. et al.** Plasma lipidomic profiles improve upon traditional risk factors for the prediction of cardiovascular events in type 2 diabetes mellitus. *Circulation* 2016; 134: 1637-50