Editorial

Setting new goals for primary prevention of cardiovascular diseases

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In September 2021 the new European Society of Cardiology (ECS) guidelines on Cardiovascular Disease (CVD) Prevention were published.[1] Apart from the different manuscript design the new guidelines introduce many novel concepts compared to the previous published 5 years ago.[2]A major difference is the introduction of a totally new method for CVD risk estimation in primary prevention; SCORE2 and SCORE-OP.[3,4] Both scores are applied to apparently healthy people (i.e. those without established atherosclerotic CVD, type 2 diabetes or severe comorbidities) aged 40-69 years (SCORE2) or older persons, aged 70-89 years (SCORE2-OP) while the previous guidelines did not include older persons at all. These algorithms use for risk calculation the non-HDL cholesterol levels and not the cholesterol levels as before. All other risk factors remain the same [age, sex, systolic blood pressure (SBP) and smoking]. The SCORE algorithm of the 2016 ESC prevention guidelines was estimating the 10-year risk of CVD death. The new scores estimate the 10-year risk of fatal and non-fatal CVD events (myocardial infarction or stroke) therefore, they better reflect the overall CVDburden. Both scores are again calibrated according to the national CVD mortality published by the WHO in four clusters (low, moderate, high and very high CVD risk). Cyprus is now in the moderate risk cluster showing an increased risk compared to the previous guidelines (low risk cluster).

As a consequence, a totally novel flow chart of CVD risk and risk factor treatment was proposed with two distinct steps. Step 1 recommends to stop smoking and immediately start hypertension treatment if SBP is ≥160 mmHg. Then, if CVD risk is very high, ≥7.5% (age <50y) or ≥10% (age 50-69y), SBP has to be treated to <140mmHg (or even down to 130mmHg if tolerated; Class I) and LDL-C to <100mg/dL (Class IIa). In the case of high CVD risk of 2.5 to <7.5% (age <50y) or 5 to 10% (age 50-69y) the same goals may be applied after taking into consideration the following factors: risk modifiers, lifetime CVD risk and treatment benefit and the patient preferences. No additional prevention goals is also an option. For low to moderate CVD risk, <2.5% (age <50y) or <5% (age 50-69y), the same factors must be considered before deciding to treat hypertension/dyslipideamia or set no additional prevention goals. In the

elderly patients (age ≥ 70y) with low to moderate CVD risk (<7.5%) no additional prevention goals are needed. When the risk is either high (7.5 to <15%) or very high (≥15%) all previously mentioned factors have to be considered before deciding SBP reduction to <140mmHg (to 130mmHg if tolerated; Class I) or low-density lipoprotein cholesterol (LDL-C) to <100mg/dL. Of note, the LDL-C reduction in the elderly is IIb recommendation class (usefulness/efficacy is less well established by evidence/opinion). Also, in both risk levels we may decide no additional prevention goals for the elderly population.

After step 1 it is mandatory to proceed to a more intensified step 2. For apparently healthy individuals aged <50 to 69 yearsthis step includes a reduction of SBP to <130mmHg (Class I) if tolerated and LDL-C to <70mg/dL (high risk individuals) or <55 mg/dL (very high risk individuals). For those ≥70 years of age, the intensified SBP goal may be set to 130mmHg or even lower if well tolerated. LDL-C target of <100 mg/dL seems reasonable in high risk or above in older persons although there is insufficient evidence and we still wait for the results of ongoing primary prevention trials. Risk modifiers, estimated life-time benefit, frailty, polypharmacy, muscle symptoms and patient preferences remain important factors during treatment of the older people.

Risk categories do not ‘automatically’ translate into recommendations for starting drug treatment. In all age groups we must always consider additional risk modifiers, lifetime CVD risk and benefit and the patient’s preferences. Psychosocial factors, ethnicity (multiplication of the risk with ethnicity specific factors), and coronary artery calcium scoring (alternatively plaque detection by carotid ultrasound) are the most important risk modifiers. Genetic risk scores, circulating or urinary biomarkers and other vascular tests or imaging modalities are not recommended as risk modifiers. Family history only marginally improves the CVD risk calculation, body composition does not improve it while frailty screening is indicated in every elderly individual but it is not formally integrated in the CVD risk assessment. Lifetime CVD risk estimation is available for various groups of patients, and enables estimation of lifetime benefit on an individual patient level expressed as extra CVD-free life-years if preventive interventions such as smoking cessation, lipid and BP lowering are applied. Lifetime benefit can be easily estimated by online calculators such as ESC CVD Risk Calculation App (escardio.org) can be easily communicatedto patients in a shared decision-making process

providing information on potential therapy benefits. This approach may increase the individual's motivation and adherence to lifestyle changes and drug treatment.

In conclusion,the 2021 ESC CVD prevention guidelines introduced a totally new algorithm to estimate the 10-year risk of both fatal and non-fatal CVD events in an extended age-range, including very old individuals.* They also presented a novel holistic approach for initiating (Step 1) and intensifying (Step 2) risk factor treatment taking into account risk modifiers, lifetime benefit, expected treatment harms, costs and above all, the patient's preferences thus creating a shared decision-making process between the healthcare provider and the patient.

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*To facilitate the risk estimation both SCORE2 and SCORE2-OP calculators are available on line at HeartScoreand also as ESC CVD Risk Calculation App (escardio.org)in the App Store and Google Play.

References

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