Kardiologia Polska 2017; 75, 1: 84–86; DOI: 10.5603/KP.2017.0009 ISSN 0022–9032

Polish Forum for Prevention Guidelines on Cardiovascular Risk Assessment: update 2016

Wytyczne Polskiego Forum Profilaktyki Chorób Układu Krążenia dotyczące oceny ryzyka sercowo-naczyniowego: aktualizacja 2016

Piotr Podolec[1], Piotr Jankowski[2], Tomasz Zdrojewski[3], Andrzej Pająk[4], Wojciech Drygas[5], Jakub Podolec[6], Monika Komar[1], Agnieszka Sarnecka[1], Klaudia Knap[1], Danuta Czarnecka[2], Maciej Małecki[7], Grażyna Nowicka[8], Jerzy Stańczyk[9], Anna Członkowska[10, 11], Maciej Niewada[11], Anetta Undas[12], Adam Windak[13], Piotr Hoffman[14], Grzegorz Kopeć[1]

[1]Department of Cardiac and Vascular Diseases, Institute of Cardiology, Jagiellonian University Medical College, John Paul II Hospital, Krakow, Poland

[2]1st Department of Cardiology and Hypertension, Institute of Cardiology, Jagiellonian University Medical College, Krakow, Poland

[3]Department of Hypertension and Diabetology, Medical University in Gdansk, Gdansk, Poland

[4]Department of Clinical Epidemiology and Population Studies, Institute of Public Health, Jagiellonian University Medical College, Krakow, Poland

[5]Department of Epidemiology, Cardiovascular Disease Prevention and Health Promotion, Institute of Cardiology, Warsaw, Poland

[6]Department of Haemodynamics and Angiocardiography, John Paul II Hospital, Institute of Cardiology, Jagiellonian University Medical College, Krakow, Poland

[7]Department of Metabolic Diseases, Jagiellonian University Medical College, Krakow, Poland

[8]Department of Biochemistry and Pharmacogenomics, Division of Biochemistry and Clinical Chemistry, Medical University of Warsaw, Warsaw, Poland

[9]Department of Paediatric Cardiology and Rheumatology, Medical University of Lodz, Lodz, Poland

[10]2nd Department of Neurology, Institute of Psychiatry and Neurology, Warsaw, Poland

[11]Department of Experimental and Clinical Pharmacology, Medical University of Warsaw, Warsaw, Poland

[12]Institute of Cardiology, Jagiellonian University Medical College, Krakow, Poland

[13]Department of Family Medicine, Jagiellonian University Medical College, Krakow, Poland

[14]Department of Congenital Heart Disease, Institute of Cardiology, Warsaw, Poland

NEW IN 2016, UPDATE OF POLISH FORUM FOR PREVENTION GUIDELINES ON CARDIOVASCULAR RISK ASSESSMENT

1. Pol-SCORE — new tool for global cardiovascular risk assessment in the Polish population
2. Comprehensive classification of cardiovascular risk
3. Cardiovascular risk age — new tool for patient education
4. Cardiovascular risk assessment in persons < 40 years of age — relative risk charts
5. Risk assessment in qualification for prophylactic pharmacotherapy

1. CARDIOVASCULAR RISK — DEFINITION

Cardiovascular disease (CVD) risk means the probability of a CVD event of atherosclerotic origin in an individual within a specified period of time. The level of risk depends on the presence of many individual characteristics and environmental factors, which are called risk factors. **Global risk** is an estimate of the risk, which considers the exposure to several risk factors. **Relative risk** is the ratio of the absolute risk of the occurrence of a specific event in the exposed group to the absolute risk in the control group. **Absolute risk** is the probability of the occurrence of a specific event in a studied population [1].

2. CARDIOVASCULAR RISK ASSESSMENT SHOULD BE PART OF THE MEDICAL VISIT

Assessment of risk should be based on analysis of medical examination, and known CVD risk factors, diseases, and the results of available additional tests. Awareness of the patient's

Address for correspondence:
Piotr Podolec, MD, PhD, Department of Cardiac and Vascular Diseases, Institute of Cardiology, Jagiellonian University Medical College, John Paul II Hospital, Centre for Rare Cardiovascular Diseases in Krakow, ul. Prądnicka 80, 31–202 Kraków, Poland, e-mail: ppodolec@interia.pl

risk allows appropriate therapeutic decisions and monitoring of the effectiveness of treatment [1, 2].

3. SYSTEMATIC CVD RISK ASSESSMENT AS A PART OF HIGH-RISK STRATEGY IN CVD PREVENTION

Risk assessment is an important part of the so-called high-risk strategy, which involves actively searching for people who are susceptible to CVD and providing them with appropriate care. Systematic CVD risk assessment is recommended in individuals at increased CVD risk, i.e. with family history of premature CVD, familial hyperlipidaemia, major CVD risk factors (such as smoking, high blood pressure, diabetes mellitus, or raised lipid levels), or comorbidities increasing CVD risk. It is recommended to repeat CVD risk assessment every five years, and more often for individuals with risks close to thresholds mandating treatment. Systematic CVD risk assessment may also be considered in men > 40 years of age and in women > 50 years of age or post-menopausal without known CVD risk factors.

4. POL-SCORE RISK CHARTS

In patients aged 40–70 years without CVD or other diseases that assign them automatically to high-risk group, the preferred tool for global risk assessment are Pol-SCORE charts standardised for Polish population. They predict the risk of death due to a CVD within the next 10 years in persons without symptoms of CVD and without diabetes. They integrate the following risk factors: age, sex, systolic blood pressure, total cholesterol, and smoking [3].

5. RISK CATEGORIES

Very high risk — includes patients with at least one of the following conditions:

- documented CVD, clinical (previous acute myocardial infarction, acute coronary syndrome, coronary revascularisation and other arterial revascularisation procedures, stroke and transient ischaemic attack, aortic aneurysm and peripheral artery disease) or unequivocal on imaging (plaque on coronary angiography or carotid ultrasound);
- diabetes mellitus (type 1 or 2) with one or more risk factors for CVD (such as smoking, marked hypercholesterolaemia, marked hypertension) or with target organ damage (such as proteinuria).
  - severe chronic kidney disease (GFR < 30 mL/min/1.73 m^2);
  - estimated risk based on Pol-SCORE charts ≥ 10%.

High risk — includes patients with at least one of the following conditions:

- markedly elevated single risk factors, in particular total cholesterol > 8 mmol/L (> 310 mg/dL), e.g. in familial hypercholesterolaemia, or blood pressure ≥ 180/110 mm Hg;
- diabetes (type 1 or 2) without CVD risk factors and systemic complications (with the exception of young people with type 1 diabetes mellitus and without major risk factors);
- moderate chronic kidney disease (GFR 30–59 mL/min/1.73 m^2);
- estimated risk based on Pol-SCORE charts ≥ 5% and < 10%.

Moderate risk — includes patients with 10-year risk of death due to a CVD disease according to Pol-SCORE charts ≥ 1% but < 5%.

Low risk — includes patients with 10-year risk of death due to a CVD disease according to Pol-SCORE charts < 1% [1–3].

6. UNDERESTIMATION OF POL-SCORE CHARTS

Pol-SCORE charts do not consider several CVD risk factors. Therefore CVD risk in an individual may be higher than estimated, especially in patients with a family history of premature CVD, approaching the next age category, with sedentary lifestyle or excessive weight, with diabetes, with low concentrations of high lipoprotein density cholesterol or apolipoprotein A1, increased concentrations of high sensitivity C-reactive protein, triglycerides, fibrinogen, homocysteine, apolipoprotein B and lipoprotein(a), with familial hypercholesterolaemia, with pre-clinical atherosclerosis (e.g. with the presence of atherosclerotic plaque or increase in intima–media thickness of carotid artery in ultrasonographic examination), and from lower social classes [1–3].

7. CARDIOVASCULAR RISK IN PATIENTS IN AN AGE RANGE (< 40 YEARS OF AGE) OUTSIDE THE POL-SCORE CHARTS

In younger people, the low absolute CVD risk may mask significant relative risk, which should be modified. In this case the use of charts of relative risk is advised (Table 1). They determine how increased total cholesterol concentration, systolic blood pressure, and smoking increase the risk of death from CVD in relation to people of the same age and sex without these risk factors [1–3].

8. CARDIOVASCULAR RISK AGE

In the education of patients it is useful to use the term "cardiovascular risk age". It means the age of a person of the same sex with the same risk score but with ideally controlled major, modifiable CVD risk factors [1].

9. THERAPEUTIC CONSEQUENCES OF RISK ASSESSMENT — PREVENTIVE INTERVENTION

Recognition of high total CVD risk indicates the need to thoroughly analyse its causes and to plan appropriate treatment aimed at its reduction, at first by intensive lifestyle modification and if not effective by pharmacotherapy. The intensity of the recommended risk modification should increase in line

Table 1. Relative risk charts [1]

	Non-smokers					Smokers				
SBP 180 mm Hg	3	3	4	5	6	6	7	8	10	12
SBP 160 mm Hg	2	3	3	4	4	4	5	6	7	8
SBP 140 mm Hg	1	2	2	2	3	3	3	4	5	6
SBP 120 mm Hg	1	1	1	2	2	2	2	3	3	4
	4	**5**	**6**	**7**	**8**	**4**	**5**	**6**	**7**	**8**
	Total cholesterol [mmol/L]									

SBP — systolic blood pressure

with the level of risk. In people who belong to the low-risk or moderate-risk group, guidance in order to maintain a low-risk or moderate-risk status is recommended [1, 4, 5].

10. PROPHYLACTIC PHARMACOTHERAPY

Implementation of pharmacotherapy to reduce global CVD disease risk must take into account the side effects of its long-term use and the effect on total and CVD mortality. Pharmacotherapy should always be recommended together with lifestyle changes. Its implementation should be based on data from clinical trials and should aim at reducing CVD risk. Global risk ≥ 5% should not be understood as a clear indication for pharmacotherapy. Such an interpretation is wrong, especially in young people [1, 5].

Conflict of interest: *none declared*

References

1. Piepoli MF, Hoes AH, Agewall S et al. 2016 European Guidelines on cardiovascular disease prevention in clinical practice The Sixth Joint Task Force of the European Society of Cardiology and Other Societies on Cardiovascular Disease Prevention in Clinical Practice. Eur Heart J, 2016; 37: 2315–2381. doi: 10.1093/eurheartj/ehw106.
2. Podolec P, Kopeć G, Pająk A et al. [Polish forum for prevention guidelines on cardiovascular risk assessment]. Kardiol Pol, 2007; 65: 100–104.
3. Jankowski P, Zdrojewski T, Bandosz P et al. [A new version of cardiovascular risk assessment system and risk charts calibrated for Polish population]. Kardiol Pol, 2015; 73: 958–961. doi: 10.5603/KP.2015.0182.
4. Reiner Z, Catapano AL, De Backer G et al. 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). Eur Heart J, 2011; 32: 1769–1818. doi: 10.1093/eurheartj/ehr158.
5. Podolec P, Kopeć G, Undas A et al. Polish Forum for Prevention of Cardiovascular Diseases Guidelines on prophylactic pharmacotherapy. Kardiol Pol, 2011; 69: 195–197.

Cite this article as: Podolec P, Jankowski P, Zdrojewski T et al. Polish Forum for Prevention Guidelines on Cardiovascular Risk Assessment: update 2016. Kardiol Pol, 2017; 75: 84–86. doi: 10.5603/KP.2017.0009.