LETTER TO THE EDITOR

The SCORE model and cardiovascular risk assessment — between utility and limits. Commentary to the article: "Association between carotid-femoral pulse wave velocity and overall cardiovascular risk score assessed by the SCORE system in urban Polish population"

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We read with great interest the article by Podolec et al. [1] and we have some comments about the factors assessed in this study — the pulse wave velocity and the Systemic COronary Risk Estimation (SCORE) model. We know that "routine screening with imaging modalities to predict future cardiovascular events is generally not recommended in clinical practice" [2]. Therefore, identifying other instruments for detecting subclinical organ damage and assessing cardiovascular risk in asymptomatic patients is desirable.

First, Podolec et al. [1] used the SCORE system to assess the overall cardiovascular risk. This is erroneous because SCORE estimates the 10-year risk of a first fatal atherosclerotic event (not non-fatal cardiovascular risk) in apparently healthy people. Moreover, the population included in the study was not clearly defined as apparently healthy.

Secondly, the SCORE charts emphasise that the highest-risk patients gain most from preventive measures. This underlines the importance of the SCORE chart in the assessment of cardiovascular risk. Seemingly, almost 60% of subjects with a SCORE < 5% have subclinical cardiovascular disease [3]. In these patients, preventive measures are vital to avoid a fatal event over the next 10 years.

Thirdly, arterial stiffness "is commonly measured using either aortic pulse wave velocity or arterial augmentation in-

dex" in order to assess preclinical vascular damage [2]. It may serve as a "useful biomarker to improve cardiovascular disease risk prediction for patients close to decisional thresholds, but its systematic use in the general population to improve risk assessment is not recommended" [2]. Podolec et al. [1] observed "a strong association between high cardiovascular disease risk (SCORE ≥ 5%) and high carotid-femoral pulse wave velocity (odds ratio [OR] 2.29, 95% confidence interval [CI] 1.17–4.46)". Similarly, Mitu et al. [3] found that "increased aortic pulse wave velocity was significantly associated with high SCORE risk (OR 1.41, 95% CI 1.01–1.96, p = 0.039)". They also found a "positive linear relationship between intima-media thickness, left ventricular mass index, aortic pulse wave velocity, and SCORE (p < 0.0001), but in completely asymptomatic subjects" [3]. Moreover, in asymptomatic hypertension-mediated organ damage patients, pulse wave velocity was one of the key factors influencing cardiovascular risk [4]. However, in low- to intermediate-risk patients, SCORE seems to underestimate cardiovascular risk, with more than a half of the patients presenting subclinical cardiovascular disease and atherosclerosis [3]. Therefore, SCORE "must be interpreted in light of the clinician's knowledge and experience and in view of the factors that may modify the calculated risk" [2]. In addition, "reclassification is of most value when

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the individual's risk lies close to a decisional threshold, such as a SCORE risk of 5%" [2].

Fourth, to differentiate low- (SCORE < 1%) from high-risk (SCORE 5%–10%) patients, the authors calculated a cut-off pulse wave velocity value of 11.7 m/s [1]. Probably, the authors wanted to use this cut-off to distinguish between intermediate- (SCORE 1%–5%) and high-risk (SCORE 5%–10%) patients. This value is similar to the one suggested as a "conservative estimate of significant alterations of aortic function in middle-aged hypertensive patients" (12 m/s) [2].

In conclusion, the SCORE charts must be used in apparently healthy people, and we must not forget that they have some limits beyond their utility.

Conflict of interest: *none declared*

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