COMMENTS AND RESPONSES

An Accurate Risk Score Based on Anthropometric, Dietary, and Lifestyle Factors to Predict the Development of Type 2 Diabetes

Response to Schwarz et al.

Schwarz et al. (1) suggest that the Finnish risk score FINDRISC is the ideal tool to be used in primary diabetes prevention programs (1). They argue that FINDRISC is simple to understand, does not require laboratory measurements, and is not restricted to computer users. However, in the representative German MONICA (Monitoring of Trends and Determinants in Cardiovascular Disease)/KORA (Cooperative Health Research in the Region of Augsburg) Study, the Finnish Diabetes Risk Score (DRS) (2), on which FINDRISC is based, poorly predicted undiagnosed diabetes (3). Based on this result, using the Finnish DRS, one would have to provide prevention programs to more than one-half of the adult population in Germany to cover 80% of future cases. This finding has raised considerable doubt as to whether a risk score developed in Finland has sufficient precision when applied in Germany.

The German DRS is a precise instrument that predicts diabetes with high sensitivity and specificity (4). In contrast to FINDRISC, the score has a broad data basis derived from a prospective German cohort of 25,167 individuals from the general population, with 849 incident cases of type 2 diabetes. In addition, the score yielded essentially identical results in a second prospective German cohort of similar size (23,398 participants, 658 cases). The evaluation of the score indicated that it allows detection of 80% of future cases of diabetes with a false-positive rate of only 30% (4). Because of its broad data basis, the German DRS allows a quantitative assessment of the contribution of each individual risk factor. In addition, the German DRS, like FINDRISC, does not require laboratory measurements, is easy to understand, and offers a risk classification. For interested users who are not familiar with computers, an easy questionnaire yielding the same sensitivity and specificity as the online version is now available.

In contrast to FINDRISC, the German DRS uses the full predictive information of important risk factors. For example, two 60-year-old men with similar height (175 cm), waist circumferences of 102 and 120 cm, respectively, and no other risk factors have estimated diabetes probabilities of 5.3 and 18.8%, according to the German DRS. In contrast, if the categories of FINDRISC were applied, these individuals would have identical estimated diabetes probabilities, an obviously questionable result. Moreover, FINDRISC and, to an even larger extent, its German adaptation introduced substantial modifications of the original Finnish DRS with no apparent empirical basis.

For the use of risk scores as screening tools to detect high-risk individuals for targeted interventions in primary prevention programs, score points may need to be translated into risk classifications to facilitate decisions about further diagnostic tests or preventive interventions. Such decisions should involve a careful benefit-cost analysis weighing the relative trade-offs between true positive (benefits) and false-positive (costs). Although FINDRISC offers risk classifications, none of them have been empirically validated in Germany. In contrast, we have reported sensitivities and specificities for varying cutoffs for the German DRS (4) that can be used for risk classification in primary prevention programs.

In view of ethical considerations and cost constraints, only tools with proven accuracy should be used for communicating a disease risk to individuals. We believe that the German DRS meets this requirement and is the preferable screening tool for diabetes in Germany at present.

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