COMMENTS AND RESPONSES

Determinants for the Effectiveness of Lifestyle Intervention in the Finnish Diabetes Prevention Study

Response to Lindström et al.

Lindström et al. (1) report from the Finnish Diabetes Prevention Study (DPS) that the Finnish Type 2 Diabetes Risk Score (FINDRISC) is useful for identifying individuals in need of lifestyle intervention. Surprisingly, 61% of participants of the DPS, all of whom were overweight and had impaired glucose tolerance (IGT), were not at high risk based on FINDRISC. Lindström et al. argue that participants with low FINDRISC scores had a relatively low risk of progressing to diabetes (1). However, the incidence rates in the control group (4–5 per 100 person-years) clearly suggest otherwise. The discrepancy between oral glucose tolerance test scores and FINDRISC might be explainable in part by the differing predictive abilities of both. Lindström et al. discuss that only about 50% of those with IGT convert to diabetes over 10 years (1). However, this number is considerably lower for the Finnish Diabetes Risk Score (DRS) (13% at a sensitivity of 78%) developed in the FINRISK studies (2), which is the basis of FINDRISC.

Several methodological issues require attention when considering the use of FINDRISC for risk prediction. Although prediction models for future diabetes should be prospectively derived and validated in disease-free populations in observational studies, the FINRISK studies involved prevalent cases and focused on drug-treated diabetes as its outcome (2). Not surprisingly, prevalent diabetes without drug treatment was a strong predictor of drug-treated diabetes during follow-up. The corresponding question has been modified in FINDRISC to try to predict future type 2 diabetes among nondiabetic individuals. Furthermore, FINDRISC considers family history of diabetes and subjects aged ≥65 years. However, family history was not evaluated in the FINRISK studies, and participants in these studies were aged <65 years. Thus, neither was included in the Finnish DRS (2). Obviously, modifications of questions, the scoring system, and cutoffs for FINDRISC did not have an empirical basis similar to that of the original Finnish DRS.

The Finnish DRS has been validated in one of the FINRISK studies (2) using the same outcome (drug-treated diabetes) and also involving prevalent cases. Unfortunately, FINDRISC has never been validated in appropriate prospective settings. Lindström et al. (1) refer to a study (3) in which the majority of cases were prevalent and that was carried out in a selected high-risk population under lifestyle intervention. Interestingly, this study reported that participants with a lower FINDRISC score would benefit more from interventions, which was in contrast with the current findings (1). Other studies evaluated the DRS or FINDRISC for a different purpose: the prediction of undiagnosed diabetes. The Cooperative Research in the Region of Augsburg study, a representative German population sample (4), reported disappointing results that were not discussed by Lindström et al. (1). Clearly, the prospective validity of FINDRISC should be documented before its use for risk stratification, as has been done for other risk scores, e.g., the German DRS, which also relies on noninvasive measures only (5).

The results from the DPS (1) suggest that FINDRISC could be used to improve the cost-efficiency of lifestyle interventions among highly selected individuals (overweight individuals with IGT). However, it is unlikely that prevention programs at the population level will use repeated oral glucose tolerance tests as an initial screening tool. Therefore, it might be more informative to evaluate whether prediction by noninvasive risk scores like the German DRS or FINDRISC can be improved by subsequent glucose testing.

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