UKPDS 60: risk of stroke in type 2 diabetes estimated by the UK Prospective Diabetes Study risk engine.

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BACKGROUND AND PURPOSE: People with type 2 diabetes are at elevated risk of stroke compared with those without diabetes. Relative risks have been examined in earlier work, but there is no readily available method for predicting the absolute risk of stroke in a diabetic individual. We developed mathematical models to estimate the risk of a first stroke using data from 4549 newly diagnosed type 2 diabetic patients enrolled in the UK Prospective Diabetes Study. METHODS: During 30 700 person-years of follow-up, 188 first strokes (52 fatal) occurred. Model fitting was carried out by maximum likelihood estimation using the Newton-Raphson method. Diagnostic plots were used to compare survival probabilities calculated by the model with those calculated using nonparametric methods. RESULTS: Variables included in the final model were duration of diabetes, age, sex, smoking, systolic blood pressure, total cholesterol to high-density lipoprotein cholesterol ratio and presence of atrial fibrillation. Not included in the model were body mass index, hemoglobin A1c, ethnicity, and ex-smoking status. The use of the model is illustrated with a hypothetical study power calculation. CONCLUSIONS: This model forecasts the absolute risk of a first stroke in people with type 2 diabetes using variables readily available in routine clinical practice.