



EVIDENCE-BASED PUBLIC HEALTH

Individuals born in the USA in the year 2000 have a 1 in 3 risk of contracting diabetes mellitus in their lifetime[☆]

Chittaranjan S Yajnik, MD (Commentary Author)

Diabetes Unit, King Edward Memorial Hospital, Sardar Moodliar Road, Rasta Peth, Pune 411011, India

KEYWORDS

Diabetes;
Risks;
Modelling;
Health surveys

Summary

Question How likely are people in the United States to contract diabetes mellitus?

Study design Prevalence study.

Main results For people born in 2000, the lifetime risk of contracting diabetes mellitus was about 1 in 3 (in females 38.5%, 95% CI 36.0% to 41.5%; in males 32.8%, 95% CI 30.3% to 35.8%). For virtually all age groups, the residual risk appeared lower in males than females and in the white population compared with other ethnic groups.

Authors' conclusions Diabetes mellitus is common. It should be a public health priority.

© 2004 Published by Elsevier Ltd.

Commentary

The global epidemic of diabetes is of unprecedented magnitude. In the next 20 years, the number of people with diabetes is estimated to reach over 300 million. However, there is little appreciation in the minds of the general public or policy makers of the dangers ahead. Narayan and his colleagues have calculated a novel indicator: the risk of diabetes in the lifetime for an individual born in the United States at the turn of the current millennium. They modelled the currently available nationally representative information to predict that 1 in 3 men and 2 in 5 women born in the US in

the year 2000 will be at risk of developing diabetes sometime during their lifetime, and 3% of these diabetic people will be diagnosed before 20 years of age. The risk is significantly higher for Hispanics (45%) compared to non-Hispanic whites (27%). Premature mortality will cut down life expectancy by 20 years and there will be a reduction in the quality of life equivalent to 30 years in someone diagnosed with diabetes at 10 years of age.

These are truly frightening statistics and should alarm all, especially those in the developing countries where the risk is higher than that in the US. Once diagnosed, diabetes treatment is complicated and expensive. The considerable socio-economic burden of this epidemic will have a major impact on the health and economy of the world, especially the fragile economies of the developing countries whose prospects for

[☆] Abstracted from: Narayan KM, Boyle JP, Thompson TJ et al. Lifetime risk for diabetes mellitus in the United States. *JAMA* 2003; 290: 1884-1890.

socio-economic development may be adversely affected. Society, the scientists and politicians all need to wake up to these possibilities.

The only real solution to this growing health menace is prevention. The epidemic is fuelled by socio-economic development, which entails dietary excess, poor physical activity and increasing psycho-social stress. Our progress has become our problem. In a community that is struggling to achieve socio-economic growth, there is little time to think about preventing diabetes. Studies in US and Europe have shown that lifestyle modification and some drugs are able to prevent or delay deterioration of glucose tolerance among those at high risk of the disease. Recent evidence that intra-uterine and childhood environment may be important determinants of future risk of diabetes opens new and exciting possibilities for prevention. Breakthroughs in our understanding about genetic predisposition for diabetes may offer new possibilities for refining and improving preventive strategies.

As a practicing diabetologist, I face a large number of patients who seek a quick 'cure' of their condition. Discussing prevention of diabetes for their children, and unborn grandchildren has never been easy. Discussing the 'lifetime risk' will hopefully provide one more tool to convince people of the need to act and also to spur policy makers into action.

Study parameters

Question How likely are people in the United States to contract diabetes mellitus?

Study design Prevalence study with Markov modeling using routine US survey data.

Setting Diabetes prevalence and incidence calculated from annual National Health Interviews Surveys, 1984-2000. Mortality rate from US Census Bureau projections.

Participants Total sample targeted by survey was 45,000 households and 120,000 individuals in 2000; response rate about 90%.

Analysis Bayesian model based on logistic regression estimated prevalence of diabetes according to age (0 to >100 years), race (non-Hispanic white, non-Hispanic black, Hispanic, other) and gender. Mortality rate for diabetic and non-diabetic population calculated using relative risks.

Main outcomes Diagnosis with diabetes mellitus.

Notes R^2 (Bayesian model) = 0.70. Sensitivity analyses carried out on varying levels of prevalence, incidence, mortality relative risks, QALY weighting.

Sources of funding: not stated.
Abstract provided by Bazian Ltd, London.

Available online at www.sciencedirect.com

