47-Fold rise of diabetes in childbearing age Chilean women: Markov model and cost-effectiveness of prevention of birth defects

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Abstract

Aim

Prevalence of type 2 diabetes mellitus (T2DM) during childbearing age in Chile had a 47-fold rise in 7 years, reaching 120 844 women, half of which are unaware of their condition. We aimed to project pregnancies and births among Chilean women of childbearing age (WCBA) with T2DM and report the incidence of birth defects and the associated years of life lost and lifetime costs.

Methods

Markov model of cohort of WCBA with T2DM (WCBA-DM) with a 20-year time horizon (2018–2037), using data from previous studies. Two scenarios were assessed: scenario A: no universal detection of T2DM and scenario B: universal screening of T2DM using glycosylated hemoglobin levels. Both lifetime costs and disability-adjusted life years (DALY) were calculated with a 5% discount rate (US$ of 2017).

Results

In scenario A, 12 163 infants with birth defects could be born among the analyzed cohort, resulting in 243 260 years of life lost, 296 652 DALY and in lifetime costs of US$ 1 957 657 966. In scenario B, the first three figures could be reduced by 70.4% to 3599 infants with birth defects, 71 980 years of life lost and 87 794 DALY. Due to the addition of *diabetes screening and new patient costs* to scenario B, there would be a lesser reduction (67.3%) in total lifetime costs, to US$ 640 669 296.

Conclusion

Screening of diabetes in WCBA would yield a 20-year reduction of 70.4% in the number of infants with birth defects, years of life lost and DALY. Total lifetime costs could be reduced by 67.3%.