COMMENT ON NANDITHA ET AL.

Secular TRends in DiabEtes in India (STRiDE–I): Change in Prevalence in 10 Years Among Urban and Rural Populations in Tamil Nadu. Diabetes Care 2019;42:476–485

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Nanditha et al. (1) recently reported on time trends in diabetes prevalence in Tamil Nadu, India, between 2006 and 2016. They found stronger increases in prevalence in periurban villages (PUVs) and towns compared with cities, while the absolute prevalence was still highest in cities. Based on these results, we estimate the incidence of diabetes in Tamil Nadu in order to provide further insights into the diabetes epidemic in India.

It has been shown that mathematical relationships can be used to estimate the age-specific incidence rate using input values for the prevalence, its temporal change, the mortality rate of the general population, and the mortality rate ratio (MRR) of people with versus without diabetes (2). Based on the reported prevalence and its temporal change (1), the general mortality from official life tables (3,4), and different scenarios for the MRR, we estimated the age-specific incidence rate in cities, PUVs, and towns by solving equation 2.9 in Brinks and Landwehr (2). Because the age-specific MRRs were unknown, we assumed values between 3.0 and 6.0 at age 20 years (i.e., three to six times higher mortality among people with diabetes vs. without diabetes) and between 1.0 and 1.5 at age 90 years. These ranges of the MRR and the assumption of decreasing MRRs with age are based on empirical evidence (5). Between ages 20 and 90 we assumed a linear decrease of log(MRR) (5). Additionally, we considered temporal decreases in the MRR of between 0 and 2% per year, since the mortality rate among people with diabetes usually decreases faster than among people without diabetes (5). In order to compare the incidence rates between cities, PUVs, and towns, we calculated age-standardized incidence rates using the Asian standard population of the International Network for the Demographic Evaluation of Populations and Their Health (INDEPTH) (6). We report the mean, minimum, and maximum of the incidence rates over all MRR scenarios.

The mean age-standardized incidence rates in cities, towns, and PUVs were 23.4 (minimum 20.4, maximum 26.0), 21.9 (minimum 19.3, maximum 24.2), and 14.8 (minimum 12.2, maximum 17.2) per 1,000 person-years, respectively. Hence, compared with cities, the incidence rates in towns and PUVs were reduced by about 1.5 cases per 1,000 person-years and 8.5 cases per 1,000 person-years, respectively. The age-specific incidence rates show similar differences (data not shown).

In general, differences in prevalence can be attributed to differences in the incidence rate as well as differences in mortality. Here, we have shown that differences in the incidence rate are at least partly responsible for the observed lower prevalence in rural regions. Despite stronger increases in prevalence in rural areas of Tamil Nadu (1), the incidence was lower than in cities between 2006 and 2016. Since primary prevention aims to reduce the incidence rate, our results might support the implementation of future interventions, especially in the nonrural regions.

Duality of Interest. No potential conflicts of interest relevant to this article were reported.

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