

FEATURES OF THE METABOLIC SYNDROME PREDICT NEW-ONSET DIABETES AND CONVERSION OF PREDIABETES TO DIABETES: EVIDENCE FROM A PROSPECTIVE, COMMUNITY-BASED COHORT FOLLOW-UP STUDY

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Abstract

Background There is limited data on the prevalence and outcome of prediabetes (PDM) and the incidence of type 2 diabetes mellitus (T2DM) in South Asia. We investigated these in a prospective, community-based study involving a cohort of urban adults in Sri Lanka, with a seven-year follow-up. **Methods** Participants were selected by age-stratified random sampling, and were initially screened in 2007 and reevaluated in 2014. To assess the participants, structured interviews, anthropometric measurements, liver ultrasound, biochemical, and serological tests were performed on both occasions. **Results** 2985 individuals were recruited in 2007 [54.8% women, median age (IQR) 53 (47-59)]; 737 had T2DM [baseline prevalence 24.7% (95% CI: 23.1–26.2)] and 525 had PDM [baseline prevalence 17.9% (95% CI: 16.2-19.6)]. 2148 (71.6%) attended follow-up in 2014 [57.5% women; median (IQR) 60 (54–66) years], which included 1650 who did not have T2DM in 2007. By 2014, 436/1650 (27.6%) had developed new T2DM [annual incidence 3.9% (95% CI:3.0-4.9)]. On logistic regression, PDM, central obesity, dyslipidemia, and nonalcoholic fatty liver disease (NAFLD) at baseline showed significant association with new-onset T2DM. Of 525 with PDM in 2007, 365 (69.5%) presented for follow-up in 2014; 147/365 (40.3%) remained in PDM, 201/365 (55.1%) had progressed to T2DM and 17/365 (4.6%) had reverted to normoglycemia. Annual conversion rate of PDM to T2DM was 7.9%. Increase in waist circumference and low HDL from baseline predicted progression to T2DM. **Conclusions** Presence of features of the metabolic syndrome at baseline predicted new-onset T2DM and conversion of PDM to T2DM. Targeted lifestyle interventions are essential for individuals with metabolic risk to prevent future T2DM.

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