

Contribution of Obesity and Physical Inactivity to the Increased Type 2 Diabetes risk in Emiratis

Budour Alkaf^{1,2}, James Parkinson³, E. Louise Thomas³, Alexandra I. Blakemore^{4,5}, Marjo-Riitta Jarvelin^{2,4}, Nader Lessan¹

¹ Imperial College London Diabetes Centre, Abu Dhabi, United Arab Emirates, ² Department of Epidemiology and Biostatistics, Imperial College London, London, United Kingdom, ³ Research Centre for Optimal Health, School of Life Sciences, College of Liberal Arts and Sciences, University of Westminster, London, United Kingdom, ⁴ College of Health, Medicine, and Life Sciences, Brunel University London, Uxbridge, United Kingdom, ⁵ Department of Medicine, Imperial College London, London, United Kingdom

Aim

Investigate the contribution of obesity and physical inactivity towards differences in T2D risk among individuals of Caucasian (CAU), South Asian (SA), and African Caribbean (AC) descent living in the UK, and Emiratis living in the UAE.

Methods

We utilised 2 Emirati sample populations; EM-1; 7556 Emiratis from the general population, EM-2; 1340 Emiratis with or without T2D collected in a case-control study design. Data presented on CAU, SA and AC were from the UK Biobank (UKBB) baseline data (Application number 23889). Obesity was assessed by BMI. Physical activity was measured by self-reporting questionnaires.

Results

Overall prevalence of T2D in EM-1 was 14.1%. T2D prevalence rates were higher among Emiratis (EM-1) compared to other ethnic groups at all ages studied. After adjusting for differences in age, compared to CAU males, the ORs for T2D were significantly higher in SA, AC, and Emirati males ($p < 0.001$), respectively. ORs remained elevated after further adjustment for BMI. Results were similar in females. Physical inactivity rates were over 2-fold higher among Emiratis compared to all other ethnic groups. In addition, a significant association of physical inactivity with T2D, independent of BMI, was only observed in CAU, but not in Emirati, SA, or AC individuals.

Conclusions

Our findings indicate that the large ethnic-specific variations in T2D prevalence rates cannot be fully explained by differences in BMI. Results also highlight the lower rates of physical activity among Emiratis compared to other ethnic groups studied, and suggests an ethnic-specific relationship between physical inactivity and T2D risk.