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The role of macrophages polarization in the pathophysiology of diabetic atherosclerosis

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Diabetes is associated with increased risk for atherosclerosis which is a chronic inflammatory disease. The increased inflammation and accelerated atherosclerosis are observed in diabetic patients and the inflammatory response in the pathogenesis of atherosclerosis is generated by interactions between plasma lipoproteins, monocytes/macrophages, T lymphocytes, endothelial cells, smooth muscle cells and the extracellular matrix of the arteries. Macrophages are the most important cells in pathogenesis of atherosclerosis, and play an important role in the generation of foam cells which produce inflammatory mediators. M1 and M2 macrophages are present in the atherosclerotic plaques where M1 macrophages play an important role in the development of plaque; on the other hand M2 macrophages help in the regression of inflammation. Hence, hyperglycemia and advanced glycation end products (AGEs) effect macrophages polarization.

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High prevalence of diabetes in expatriates living in United Arab Emirates (UAE): United Arab Emirates National Diabetes (UAEDIAB) study

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Introduction & Aim: The Middle East and North Africa (MENA) region has the highest prevalence of diabetes in adults (10.9%) compared with other regions in the world. In 2011, the UAE was reported to have the 10th highest prevalence of diabetes in the world. However, these estimates are based on studies which excluded many of the overseas-born residents who make up over 80% of the population. The aim of this study is to assess the prevalence of diabetes and its risk factors, across the whole of the population.

Methods: In phase 1 of this study, a random, representative sample of expatriates living in the UAE was recruited from Preventive Medicine Departments (PMDs). All expatriates have to visit PMDs every 2-3 years for periodic medical examinations to renew visas. These visits provide a novel and ideal method of sampling this component of the population. In phase 2, recruitment of UAE nationals is underway using cluster randomization of households. Data were collected using interviewer-administered questionnaires, anthropometric measurements and fasting blood samples for glucose, lipids and genetic analyses. Findings from phase 1 are presented here.

Results: 2724 expatriate adults had the full set of questionnaires and blood tests. Of these, 81% were males, 65% were <40 years old and only 3% over 60 years. Diabetes, based on fasting blood glucose ≥7.0 mmol/l or on self-report of previous diagnosis had an overall age-and-sex-adjusted prevalence of 19.1%. The highest prevalence was in Asians (16.4%) and in non-Emirati Arabs (15.2%), with lower prevalence seen in Africans and Westerners (11.9%). Diabetes prevalence increased with age: 6.3% in those aged 18-30 years and >39.4% in those aged 51 to 60 years. Lower education, high BMI, positive family history, hypertension, dyslipidaemia, snoring and low HDL levels showed significant associations with diabetes.

Conclusion: These results show that, there is a high prevalence of diabetes among migrant Asian and Arab workers in the UAE, despite their relatively young age. Programs to prevent, manage and control diabetes and other NCDs are urgently needed for the whole population of the UAE. The Government is considering Diabetes and NCD among their national health priorities. Programs such as compulsory medical insurance by the employers were initiated and need to be universal.

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