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HIGH PREVALENCE OF TYPE-2 DIABETES IN CHINESE OIL WORKERS: INTERACTION BETWEEN SAA1 GENE AND WORK STRESS

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Objectives Serum Amyloid A (SAA) was reported associated with insulin resistance and type-2 diabetes. The present study aimed to investigate the prevalence of type-2 diabetes and its association with SAA1 genetic polymorphisms in Chinese oil workers.

Methods Three stages were performed for the present study. In the stage one, a cross-sectional survey was designed to investigate the prevalence of type-2 diabetes in oil workers; in the stage two, we detected the SAA1 genetic polymorphisms and analysed their association with serum glucose (GLU) levels; in the stage three, we designed a nested case-control study to analyse the association of diabetes with SAA1 gene polymorphisms.

Results Overall, the prevalence of type-2 diabetes was 15.6% in total, 14.9% in men, and 18.0% in women, respectively. In nondiabetic individuals, rs2229338, rs4638289 and rs12218 were found to be significantly associated with serum GLU levels before and after multivariate adjustment (all $P < 0.05$). In the nested case-control study, we found rs2229338, rs12218, and rs11603089 was associated with Type-2 diabetes by univariate analysis, respectively (all $p < 0.05$). After adjustment of confounders, the difference remained significant in rs2229338 ($p = 0.015$, OR = 2.610 (95% CI: 1.204 to 5.656)) and rs12218 ($P = 0.018$, OR = 2.797 (95% CI: 1.197 to 6.537)). Furthermore, there was a significant interaction between rs2229338 and work stress on type 2 diabetes ($p = 0.001$, OR = 2.304 (95% CI: 1.387 to 3.829)).

Conclusions Type 2 diabetes is highly prevalent in Chinese oil workers. The genetic polymorphisms of SAA1 were associated with serum glucose levels in nondiabetics and were independent risk factors of type 2 diabetes in Chinese oil workers.