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DIFFERENTIAL GENE EXPRESSION OF PERIPHERAL ARTERIAL DISEASE IN TYPE 2 DIABETES MELLITUS AMONG THE FILIPINO POPULATION

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OBJECTIVE

The study aims to identify differentially expressed genes in Filipinos with peripheral arterial disease (PAD) and type 2 diabetes mellitus (T2DM) as possible biomarkers.

METHODOLOGY

A total of 100 Filipinos participated in this 1:2 unmatched case-control comparing participants of T2DM with PAD, and persons without diabetes. Gene expression profiling of participant's peripheral blood mononuclear cells was done via multiple microarray platforms [Illumina's Whole-Genome Gene Expression Direct Hybridization and Affymetrix Human Clariom S (human) Assays] covering over 18,000 possible genes. Differentially expressed genes were determined using the limma package to perform for Bayes t-statistics, and fold change to compute for varying gene expression between groups.

RESULTS AND DISCUSSION

There are 427 significant genes (*p-value* of <0.001) differentially expressed in PAD in T2DM compared with persons without diabetes. Majority of these genes identified are related to metabolic processes, cellular organization/differentiation, endothelial cell proliferation, and immune responses. These processes are implicated in PAD and may be contributory to its vascular pathology. Genes involved in endothelial cell proliferation are amongst the top in significance: *FGFBP1* (fibroblast growth factor-binding protein 1) (*p-value* 3.90×10^{-6}), *FGF2* (fibroblast growth factor) (*p-value* 4.92×10^{-6}), *AKT3* (AKT serine/threonine kinase 3) (*p-value* 6.78×10^{-5}), *GHSR* (growth hormone secretagogue receptor) (*p-value* 2.72×10^{-4}), *THBS4* (thrombospondin 4) (p-value 4.74×10^{-4}), *PDCL3* (phosducin like 3) (*p-value* 5.77×10^{-4}), and *MDK* (midkine) (*p-value* 9.39×10^{-4}).

CONCLUSION

The study's results identified multiple genes that may contribute to the development of PAD in T2DM which can aid in future molecular-based approaches after validation studies.

KEY WORDS

diabetes mellitus type 2, gene expression, peripheral arterial disease

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GLYCAEMIC CONTROL OF TYPE 2 DIABETIC PATIENTS WITH SELF-MONITORING OF BLOOD GLUCOSE DURING RAMADAN FASTING IN JAKARTA INDONESIA

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INTRODUCTION

Ramadan is a month in the Islamic calendar when Moslems fast every day. According to demographic study in 2010, Islam believers in Indonesia equal to 87,18% of its total population. The purpose of this study was to evaluate glucose reading provided by self-monitoring of blood glucose (SMBG) in type 2 Diabetes (T2D) patients during Ramadan fasting.

METHODOLOGY

This is an observational study that recruited T2D patients who practiced fasting during the month of Ramadan. Patients were advised to monitor their blood sugar on the last day of each week of Ramadan including before and after *suhoor*, in the morning, at noon, in the afternoon, also before and after *iftar*. Patients were educated before Ramadan about diet, medication and SMBG by glucose reading meters. We evaluated glycaemic control of patients and the rates of hypoglycaemia and hyperglycaemia