

# **STUDIES TO DETERMINE THE PREVALENCE OF CANDIDATE GENE POLYMORPHISM AND THEIR ASSOCIATION WITH ARTERIAL STIFFNESS IN DIABETES MELLITUS AMONG MALAYS**

**RESEARCH CENTER:** Human Genome Center, School of Medical Science,  
Universiti Sains Malaysia

**CURRENT STATUS OF PROJECT:** Ongoing

## **RESEARCHERS:**

1. Samitah Zafar (post-graduate student)
2. Prof. Dr. Abdul Rashid Abdul Rahman (supervisor)

## **INTRODUCTION:**

Alterations in large artery structure and function have been shown to occur in certain diseases e.g. essential hypertension, Type II diabetes mellitus (DM) and dyslipidemias as a results of interaction between several genetic and environmental factors. Identification of such genetic markers is therefore of major interest in detection of high-risk patients. The renin angiotensin aldosterone system (RAAS) and nitric oxide (NO) play important roles in large artery structure and function besides blood pressure homeostasis. Many studies showed that Angiotensinogen (AGT) M<sup>235</sup>T, Aldosterone synthase (CYP11B2) T<sup>344</sup>C, Nitric Oxide Synthase (NOS) G<sup>894</sup>T polymorphisms have a significant role in arterial alterations (hypertrophy & stiffness) in hypertensive patients. Therefore the role of RAAS and NOS polymorphisms in subjects with DM (type 2) remains to be further explored.

## **OBJECTIVES:**

- 1). To determine the prevalence of polymorphism of AGT M<sup>235</sup>T, CYP11B2 T<sup>344</sup>C, NOS G<sup>894</sup>T genes in Malay patients with diabetes mellitus.
- 2). To determine the association of these polymorphisms with arterial stiffness in these patients.
- 3). To compare the association between gene polymorphisms and arterial stiffness among the two populations i.e diabetes mellitus and normotensive, normoglycemic control group.

## **TECHNICAL METHODOLOGY:**

- 1- Genotyping will be done by using PCR-RFLP technique.
- 2- Arterial stiffness shall be measured as pulse wave analysis using Sphygmocor machines.

## **OUTCOME:**

1. Prevalence of polymorphism of AGT M<sup>235</sup>T, CYP11B2 T<sup>344</sup>C, NOS G<sup>894</sup>T genes in Malay patients with diabetes mellitus will be determined.
2. The association of these polymorphisms with arterial stiffness in these patients will be determined.
3. Association between gene polymorphisms and arterial stiffness among the two populations i.e diabetes mellitus and normotensive, normoglycemic control group will be compared.
4. Identification of high risk patient. This knowledge shall help in preventing the occurrence of these complications or in optimizing the therapeutic strategies in diabetes mellitus
6. Early detection of these polymorphism in normal population may help to treat the problems before hand
7. In diseased population optimizing the therapy will reduce the economic burden of the country by reducing the complications of the disease