

5th International Conference on Biomarkers & Clinical Research

April 15-17, 2014 St. Hilda's College - University of Oxford, UK

The pros and cons of using biomarkers and genetic markers in the study of common multifactorial disorders- A study on Saudi population

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Diabetes mellitus (DM), hypertension (HT), obesity and coronary artery disease (CAD) are among the most frequently encountered multifactorial disorders in the adult Saudi population. The search for biomarkers that could be used as presymptomatic markers for the identification of individuals susceptible to develop these disorders has been on for decade. We conducted this study on Saudi individuals suffering from DM (421), HT (157), overweight (78), obesity (214) and CAD (101) and 429 normal healthy controls. Biochemical markers investigated included the routine biochemical parameters, Lp(a), leptin, coagulation factors, insulin and c-peptide, and the genetic markers used were polymorphisms in angiotensinogen converting enzyme (ACE) gene and SA gene. The results of biochemical markers followed the routine patterns and specific parameters were elevated in the specific disorders, though wide variations were observed and several overlaps in the values were evident between the disorders. Lipoprotein (a) and leptin results were conclusive though differentiation between results in DM, obesity and CAD were not evident. ACE gene polymorphisms showed significant elevation of DD genotype and D allele frequency in patients with obesity, CAD and diabetes with end stage renal disease. No differences existed between the control group and HT. On the other hand SA gene polymorphism showed significant elevation of the A1A1 genotype in CAD patients and in HT, but not in DM and obesity.

Comparison of the results with the results reported in literature led to the conclusion that the major problem with genetic markers was the population differences observed in the gene frequencies within the healthy population and within the patients from different countries and ethnic groups. This presentation will present the results obtained in the different multifactorial disorders in Saudis and will discuss the pros and cons of biomarkers and genetic marker analyses.

Biography

Arjumand S. Warsy is a Professor at Department of Biochemistry in the College of Science at King Saud University, Saudi Arabia. She has completed his Ph.D. in 1974 from the Department of Applied Biochemistry & Nutrition at University of Nottingham, UK. Title of Thesis: Study of proteinase inhibitors in seeds of *Vicia faba* (Broad Bean). She was a Post-doctoral Research Associate at Department of Biochemistry, University of Birmingham, UK from 1973-1975. She joined Department of Biochemistry, College of Medicine, Sciences and Medical Studies, Department for Women Students, King Saud University in 1977.

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