Poster Abstract Submission

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Research Title	The pharmacogenomics of antiplatelet therapy with a major focus on Clopidogrel in the United Arab Emirates

Abstract:

The pharmacogenomics of antiplatelet therapy with a major focus on Clopidogrel in the United Arab Emirates Lubna Q. Khasawneh1, Mais N. Alqasrawi[1], Sahar Altoum[1], Zeina N. Al-Mahayri1, Dana Hamza[1], Gohor Jamil2, Husam Ouda3, Fatima Al-Meskari4,5, Juma M Al-Kaabi6, George P. Patrinos1,7 and Bassam R. Ali1,5* 1Department of Genetics and Genomics, College of Medicine and Health Sciences, United Arab Emirates University, Al-Ain, United Arab Emirates. 2Department of Medicine, Tawam Hospital, Al-in, United Arab Emirates. 3The Heart Medical Center, Al-Ain, United Arab Emirates. 4Institute of Public Health, College of Medicine and Health Sciences, United Arab Emirates University, Al-Ain, United Arab Emirates. 5Zayed Center for Health Sciences, United Arab Emirates University, Al-Ain, United Arab Emirates. 6Department of Internal Medicine, College of Medicine and Health Sciences, United Arab Emirates University, Al-Ain, United Arab Emirates 7University of Patras, School of Health Sciences, Department of Pharmacy, University Campus, Rion, Patras, Greece. Background: Pharmacogenomics (PGx) focuses on genetic variation that affects an individual's drug response. Cardiovascular diseases (CVDs) have been reported to be the leading cause of death in the United Arab Emirates (UAE) for the last few decades and therefore there is an urgent need to reduce their burden on the country. Clinical trials confirmed the clinical utility of PGx-guided dosing plans compared to the standard of care in the management of CVDs. For instance, anti-platelet PGx-guided dosing has been shown to reduce the risk of thromboembolic events. Therefore, the current trend is to include PGx testing within the protocols for the implantation of therapeutic and management strategies in CVDs. Objectives: This research is part of a collaborative project to personalize treatment for the most commonly used anti-platelet medications in the UAE healthcare system using well-established clinical PGx biomarkers. Methods: It is a randomized controlled trial launched recently to recruit 500 patients taking Clopidogrel based on specific criteria. Peripheral blood samples and clinical data are being collected from several healthcare providers in UAE. Genetic testing of five CYP2C19 variants is performed using RT-PCR to generate a PGx-guided recommendation report for each subject. The reports are provided to the clinicians within 48 hours to individualize their therapeutic options. In addition, recruited patients will be followed for twelve months, and the two arms will be compared for selected endpoints. Results: We proceed to implementation by generating a pilot study of the first 160 patients revealing that 11.9% of the participants were poor metabolizers for the CYP2C19 gene, while 35% were intermediate metabolizers. Collectively, 46.9% should receive a recommendation to avoid using Clopidogrel. Conclusions: The pilot study confirms the potential benefits of applying PGx testing on Clopidogrel prescribing, which indicates the feasibility of the implementation in different UAE healthcare systems.