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Clinical relevance of pharmacogenetic testing: *Literature Evaluation*

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Background: Pharmacogenetics is the study of genetic influence on pharmacological response. Pharmacogenetic testing serves to identify the presence of genetic variants which may affect pharmacological outcomes. Literary evidence pertaining to the clinical relevance of pharmacogenetic testing has historically presented conflicting results and remains a topic of controversy.

Objective: To determine the clinical relevance of pharmacogenetic testing.

Methods: A literature search was conducted using EBSCO host and EMBASE using a variety of search terms pertaining to pharmacogenetic testing in the following medication classes: cardiovascular, oncologic, pain management, antiretroviral, and antidepressant. Results were limited to English, full text articles published between the 2005 and 2013. Human randomized control trials, prospective control trials, meta-analyses, reviews, retrospective and case studies were included. Selected articles were evaluated and assigned ratings based on level of evidence. A rating of "A" was assigned for high level of evidence, "B" for moderate level of evidence, and "C" for minimal level of evidence.

Results: Our literature search resulted in a total of twenty-one selected articles of interest. Of these articles we identified seven articles with an evidence rating of "A" and four articles with an evidence rating of "B".

Conclusion: According to our findings, pharmacogenetic testing is relevant to clinical practice in certain situations. Its use provides health care providers with additional information which may enable them to treat patients more efficiently by preventing adverse reactions and anticipating therapeutic responses. A lack of prospective randomized control trials, ethical concerns, and a lack of provider knowledge pertaining to pharmacogenetic testing remain as barrier to routine pharmacogenetic testing in clinical practice. Despite these barriers, the future of pharmacogenetic testing is promising and expected to be welcomed by those whom are concerned with providing optimal pharmaceutical care.

Biography

Mohammad Shawaqfeh is an Assistant Professor at College of Pharmacy at Nova Southeastern University. Currently, he has a practice site at Palm Beach Gardens Medical Center for internal Medicine. He practiced pharmacy in Jordan, Saudia Arabia, Bahrain and US. He received his BSc (1993) and diplome (2000) in pharmacy from the JUST. He also has an MS in pharmacy (2006) and Pharm.D.(2007) from University of Iowa. He earned his Clinical Science research Certificate (2011), and a PhD in Clinical pharmacy (2014) from University of Pittsburgh. His research areas focused on pharmacokinetics, drug metabolism, clinical pharmacy, pharmacogenomics, and transplantation. Currently licensed in PA and FL and a consultant pharmacist in FL. Served in the editorial board of Journal of Pharmaceutical Care & Health Systems.

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