Role of Pharmacogenomics in Statin Responsiveness; A Review

Statins have been used for decades as a successful cholesterol-lowering class of medicines. Statins are widely prescribed for the primary and secondary prevention of coronary artery disease. They reduce cardiovascular risk and improve health outcomes in people with cardiovascular disease. Although statins are considered as a safe medicine and are well tolerated by patients, prediction of an individual patient’s response to statin therapy remains unclear. Variation to statin therapy has been attributed to both environmental and genetic factors. In this review, a number of candidate genes that affect statin pharmacokinetics and pharmacodynamics are discussed. Moreover, the association of demographic factors with statin response in related studies is described. In this article we have reviewed the literature concerning pharmacogenetic studies on statin response. Thirty seven English language clinical trials, prospective or retrospective human investigations, case series, case reports, published between 1998 to 2010, were evaluated. Based on these data, there are some candidate genes that have been established as affecting genes on statin efficacy and suggest that drug therapy, based on individuals’ genetic makeup, may result in a clinically important reduction in variation of statin response.

Keywords: Cardiovascular, Pharmacodynamics, Pharmacogenetic, Statins

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