Association of insertion/deletion mutations in angiotensin converting enzyme (ACE) gene and effectiveness of Glibenclamide therapy in Iranian type 2 diabetic patients

Sadaf Safaie [a*], Hamid Mir Mohammad Sadeghi [b], Zahra Mir Mohammad Sadeghi [b]

Authors' Affiliations:
[a] Sadaf safaei; student; Pharmacy Students' Research Committee, School of Pharmacy, Isfahan University of Medical sciences, Isfahan, Iran.

[b] Department of Pharmaceutical Biotechnology and Isfahan Pharmaceutical Sciences Research Center, School of Pharmacy, Isfahan University of Medical Sciences, Isfahan, Iran.

Abstract Presenter:
Sadaf safaei; student; Pharmacy Students' Research Committee, School of Pharmacy, Isfahan University of Medical sciences, Isfahan, Iran.;
E-mail:sadafsafaie.mui@gmail.com

****Correspondence:***
Sadaf safaei; student; Pharmacy Students' Research Committee, School of Pharmacy, Isfahan University of Medical sciences, Isfahan, Iran.
E-mail:sadafsafaie.mui@gmail.com

Abstract

Introduction: Type 2 diabetes mellitus (T2DM) is an expanding global health problem, closely linked to the epidemic of obesity. The incidence of diabetes is increasing because of aging, changing ethnic mix of the population and worsening obesity. Glibenclamide is used for the treatment of patients with type II diabetes mellitus. Some patients respond well to this therapy while others need to use higher doses along with other medications. Since polymorphisms in ACE gene has been associated with type 2 diabetes mellitus, in the present study we investigated the association of insertion/deletion mutations of this gene with the effectiveness of Glibenclamide in treating Iranian type 2 diabetic patients.

Methods and Results: In this experimental study, blood samples from type II diabetic patients were collected (n=99) and their genomic DNA was isolated. Specific primers for the detection of insertion/deletion mutation were used and polymerase chain reactions (PCR) were conducted using specific thermal cycles. The amplified DNA samples were detected by electrophoresis of these samples on a 0.7% agarose gel. Statistical analysis of the obtained data was performed using t-test and chi-square test. A total of 99 patients were enrolled to the study. The frequency distribution of DD, ID, and II polymorphisms were 72%, 20%, and 8%, respectively. There were no differences among genotypic groups (P = 0.146). In terms of cholesterol, there was a significant difference between DD and DI (P = 0.012). There was a significant difference between the two DD and II genotypes in terms of creatinine (P = 0.034)

Conclusions: Although the results of our study indicated no association of ACE I/D polymorphisms and Effectiveness of Glibenclamide therapy, DD genotype may play a role on effectiveness of Glibenclamide Therapy.

Key words: ACE, Gene, Diabetes mellitus, Glibenclamide

Grants: (No grant)