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News & Comments

Metformin Medicine Can Treat Diabetic Patients

Abir Hariz

Metformin is the world's most widely prescribed oral hypoglycaemic medication. Individual disparities in the treatment of diabetic patients with metformin have been discovered in studies, with roughly 29-38% failing to achieve the desired hypoglycaemic effect. It was involved in metformin disposal in vivo and oversaw cationic drug excretion, including metformin, in renal tubular epithelial cells. It was tightly linked to metformin metabolism in vivo. Further analysis of the association between the distribution of gene polymorphism in the hospital and the efficacy of metformin will be conducted to expand the data, to provide evidence for gene-oriented TDM personalized medicine.

The research strategy was broken into five sections: (1) Diabetic patient enrolment, (2) SLC47A1 gene detection in diabetic patients, (3) Clinical pharmacists providing clinical guidance reports for the clinician on metformin medication based on the results of genetic testing, (4) Clinician would adjust metformin medication based on the report, and (5) Analysing the patient's parameters before and after medication guidance to determine the treatment effect of SLC47A1 testing on metformin personalized medication guidance First, DNA was taken from the patient's blood, and then the genotype of SLC47A1 was identified on the L998A fluorescence detector using the PCR - Restriction Fragment Length Polymorphism method. SPSS 24.0 for Windows was used to analyse the data (SPSS Inc., Chicago, IL, USA). Means and standard deviations (SEM) were used to show the data. The chi-square test or Fisher's exact test was used to compare categorical variables. Statistical significance was defined as *p<0.001.

As indicated, a total of 372 diabetic patients tested for SLC47A1 gene rs2289669 polymorphism in hospital in the second quarter, with 258 males (69.35%) and 114 females (30.65%).

The GA genotype accounted for the highest proportion of male patients (42.64%), while the GG genotype accounted for the highest proportion of female patients (36.84%). The distribution of the three genotypes did not differ significantly between male and female patients. However, the effect of genotypes on hyperuricemia, diabetic foot disease, diabetic retinopathy, diabetic ketosis, diabetic eye disease, and coronary heart disease was not statistically significant.

Gender, age, and illness types were not significantly different among the three genotypes, however, there were substantial differences in the tendency for complications among patients with each genotype, which were not reported. In addition, our department has developed SLC47A1 genetic testing concepts for guiding clinical medicine. Furthermore, after therapy, the clinical indices 2h-CP,

HbA1b, and HbA1c were dramatically lowered, demonstrating that genetic testing is useful in directing therapeutic medicine. Although genetic testing technology has advanced, the uncertainty of the association between genotype and phenotype continues to make genetic testing challenging to use to guide clinical medicine. The genetic testing sector has become a key component of the national strategic plan for "precision medicine."

The biochemical parameters after the guidance were dramatically better when compared to the biochemical parameters before the guidance. Furthermore, only individuals with the AA genotype showed the greatest improvement in biochemical measures across all gene-phenotype patients. In summary, the SLC47A1 gene polymorphism can improve the treatment impact of metformin, and patients with the AA gene phenotype had the best treatment benefit.

JOURNAL REFERENCE

Song, J., H. Xu, W. Zhang, C. Yang, L. Li and J. Luan, 2022. Impact of solute carrier family 47 member 1 gene polymorphism detection on therapeutic effect of diabetes. Int. J. Pharmacol., 18: 398-406

KEYWORDS

Metformin, Diabetic, hypoglycaemic