

Program Adı

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Tezin Adı

INVESTIGATION OF THE RELATIONSHIP BETWEEN CHRONIC METFORMIN USAGE AND DNA DAMAGE IN TYPE 2 DIABETES PATIENTS

Tezi Hazırlayan

Fehmi Burak ALKAŞ

Danışman

Prof. Dr. Şahan SAYGI & Prof. Dr. Semra SARDAŞ

ABSTRACT

Metformin, the sole member of the biguanide class of antidiabetic medications, is one of the oldest antidiabetics in the market. Metformin is recommended to be used by the American Diabetic Association and European Association for the Study of Diabetes as a first line drug against Type II Diabetes. Metformin acts to reduce the blood glucose levels by inhibiting hepatic glucose production through gluconeogenesis. The most common adverse effects were gastrointestinal effects such as diarrhoea and nausea, with the possibility of vomiting, and abdominal pain. The use of metformin has recently been associated with a decreased risk of the occurrence of various types of cancers, especially of pancreas, colon and hepatocellular carcinoma. This observation was also confirmed by the results of numerous meta-analyses. In this study, Alkaline Comet Assay was validated using 6 persons in the 24-27 age range who were non-smokers, did not use any drugs or any other risk factors, both in freshly isolated lymphocytes and peroxide-exposed lymphocytes. Diabetic patients using metformin (17 metformin using patients and 6 non-metformin using control patients residing in Northern Cyprus) were included in the study. Blood samples were obtained and their peripheral

blood lymphocytes were analysed for DNA damage using Alkaline Comet Assay. Results indicate that control group and metformin group alike had varying levels of DNA damage. The low number of samples in the control group prevented the usage of statistical tests between the two groups. By increasing the number of samples, the patients will be able to be broken down into categories according to factors such as concomitant drug use, lifestyle circumstances, smoking habits, drinking habits and age, the extent of this study will thus be enlarged.

Anahtar Kelimeler: Metformin, DNA damage, comet assay, diabetic patients