Research Article

ANTIDIABETIC AGENT CHOICE IN A LOCAL HOSPITAL'S INTERNAL MEDICINE OUTPATIENT CLINIC NEAR ISTANBUL

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ABSTRACT
This study was performed to evaluate antidiabetic agent choice for diabetic patients who admitted to internal medicine outpatient clinic of a local health center between 1st January and 30th April 2017. The current study evaluated a total of 449 type 2 diabetic patients, 282 female and 167 male. Antidiabetic drug choices were reviewed. Fasting glucose, insulin, plasma lipid profile, hemoglobin A1c, plasma throid functions, liver enzymes were analyzed. Mean hemoglobin A1c was 8.85 % in our study. 84.6% of total patients were treated with metformin as an initial therapy. It is important to apply the patient centered approach in the treatment of diabetes. The treatment ratio with sulfonylurea was 38.1%, pioglitazone was 34.7% and dipeptidyl dipeptidase inhibitor was 8.7%. Patient based antidiabetic treatment is important. Diabetes mellitus treatment should be compatible with current international guides.

Keywords: Type 2 Diabetes, Antidiabetic Agent

INTRODUCTION
Diabetes Mellitus (DM) is a chronic disease characterized by insulin deficiency due to loss of pancreatic beta cell function or by insulin resistance in organs such as muscle, fat and liver. According to Turkey Diabetes, Hypertension, Obesity and Endocrinological Diseases Prevalence Study (TURDEP-II) data, the incidence of DM in Turkish adult population has reached 13.7% and DM prevalence increased by %90 in the last 12 years (Satman *et al.,* 2013).

According to American Diabetes Association (ADA) Standards of Medical Care in Diabetes 2017, DM can be diagnosed based on; a random plasma glucose >200 mg/dL or hemoglobin A1c (HbA1c) low than 6.5% or fasting plasma glucose >126mg/dl or a 2nd hour plasma glucose >200 mg/dL during 75 g glucose tolerance test.

The treatment goal of type 2 DM is to prevent the development of micro- and macrovascular complications. The first step in the treatment of DM is to make changes in the lifestyle, such as diet and exercise. It is also important to inform and educate the patient about diabetes. Medical treatment should be applied after self-management education. In our study, we evaluated metabolic parameters and treatment of diabetic patients who admitted to the local hospital's internal medicine outpatient clinic.

MATERIALS AND METHODS
Methods
The current study was consisted of 449 diabetic patients who were admitted to the Arnavutkoy Local State Hospital's internal medicine outpatient clinic from January 2017 through April 2017. Treatments were examined.

All patients underwent physical examination. Alanine aminotransferase (ALT), aspartate alanine aminotransferase (AST), fasting plasma glucose, insulin, total cholesterol, triglycerides, HDL and LDL cholesterol, uric acid urea, HbA1c and creatinine were measured after an 8-hour fast using an Abbot Architect Analyzer System (IL, USA)**.** Numeric values were expressed as the mean ± standard deviation. Statistical analysis was performed using SPSS 17.0 for Windows. Regular variances were assessed using a t test, and irregular variables were assessed using the Mann-Whitney U test. *p* value <0.05 was considered statistically significant.

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RESULTS AND DISCUSSION

Mean fasting glucose level was 203.89 mg/dl, HbA1c was 8,85 %, urea was 34.85 mg/dl, creatinine was 0.79 mg/dl, total cholesterol was 214.16 mg/dl, LDL cholesterol was 130.63 mg/dl as shown in table-1.84.6% of total patients were treated with metformin as an initial therapy. The combination drug should be chosen according to the patient. The treatment ratio with sulfonylurea was 38.1%, pioglitazone was 34.7% and dipeptidyl dipeptidase (DPP-4) inhibitor was 8.7%, basal insulin treatment was 12.9% and basal-bolus insulin treatment was 5.3%, (table-2).

Table 1: Initial Laboratory Parameters of the Study Patients

	Patients (n)	%
metformin	380	84.6
sulfonylurea	171	38.1
pioglitazone	156	34.7
basalinsulin	110	24,5
premixinsulin	58	12,9
analogueinsulin	49	10,9
DPP-4 inhibitors	39	8,7
glinides	19	4,2
Acarbose	6	1,3

Antidiabetic drugs, which used to provide glycemic control in the treatment of diabetes, are biguanides, sulfonylureas, glinides, pioglitazone, alpha-glucosidase inhibitors, DPP-4 inhibitors, glucagon like peptide (GLP-1) receptor agonists, insulins (Turan and Kulaksızoğlu, 2015). According to the guidelines of the ADA and the European Association for the Study of Diabetes (EASD) medical treatment of type 2 DM should initiate with metformin if there is no contraindication. Metformin is an inexpensive, reliable and effective drug. It can reduce risk of cardiovascular events (McGovern *et al.,* 2017).

Table 2: Percentage of Antidiabetic Agent Choice for Type 2 Diabetic Patients

	Mean	Standard Deviation
Age	57,06	11,73
fastingglucose	203.89	90.20
HgA1c	8,85	2,12
Urea	34.85	16,52
creatinine	0,79	0.38
AST	24,98	19.33
ALT	25,71	20,83
totalcholesterol	214.16	46.89
HDL cholesterol	45.96	9,36
LDL cholesterol	130.63	40.01
triglyceride	195.08	102.03

Metformin may be used safely in patients with estimated glomerular filtration rate (eGFR) higher than 30 mL/min/1.73 m2. In our study, 84.6% of all patients treated with metformin which compatible with the international diabetes guides. Combination therapy should be considered in diabetic patients with elevated HbA1c >8.5). Other oral antidiabetic drugs and insulin can be administer in the combination treatment. Treatment of hyperglycemia associates with microvascular complications in patients with type 2 diabetes (Schmieder *et al.,* 2018). The combination drug should be chosen according to the patient. Moreover, life style changes should be complementary to diabetes treatment. Antidiabetic treatment should reduce risk

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of microvascular (nephropathy, retinopathy and neuropathy) and macrovascular events such as acute cardiac events, stroke, peripheral vascular disease (Abdelhafiz and Sinclair, 2017).

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