

ORIGINAL RESEARCH ARTICLE

Comparison of Usage of Conventional and Newer Oral Hypoglycemic Drugs in Type 2 Diabetes Mellitus

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ABSTRACT

Diabetes mellitus is one of the common diseases affecting human population. This study was done among diabetics to find out effect of conventional and newer hypoglycemic drugs on the basis of their effectiveness in controlling blood glucose, and development of complications and requirement of insulin therapy. Institutional Human Ethics Committee approval was obtained. Data from 70 Type 2 Diabetes mellitus patients who have visited the Diabetic OPD were included. Data regarding personal details, history of the present illness, investigations, oral hypoglycemic drugs, complications developed, and requirement of insulin therapy at any stage were collected from these charts. The results of our study showed that the male and female ratio was almost equal in the incidence of type 2 diabetes. About 66% of patients studied belong to the age group of 51-70 years. In our study only 18% of patients were having family history of diabetes. Majority of the patients were using Metformin with Glibenclamide combination. There was reduction in the mean fasting blood sugar levels in all the patients except to the patients who were taking conventional oral hypoglycemic drugs + Insulin. This shows that these patients may need adjustment of insulin dose. Systemic hypertension was seen in 52.8% of patients. This shows that there is a need for routine monitoring of Blood pressure in all diabetics. Percentage of complications was more in patients taking conventional oral hypoglycemic drugs even though there was a good glycaemic control.

Key words: conventional oral hypoglycemic drugs, newer oral hypoglycemic drugs, diabetes mellitus.

INTRODUCTION

Diabetes mellitus is one of the common diseases affecting human population. It is a metabolic disorder characterized by hypoglycemia, glycosuria, hyperlipidemia, negative nitrogen balance and sometime ketonuria. It can lead to microvascular complications like retinopathy, neuropathy, peripheral vascular disease, cerebrovascular disease and coronary artery disease. Therefore treatment of the disease is very important for preventing complications of Diabetes. Metformin can lower insulin resistance and microvascular complications. And prolonged usage of sulfonylurea may lead to ineffective control of the disease due to progression of disease, drug and dietary noncompliance or desensitization of receptors. Various clinical studies were done with conventional and newer drugs. Glycemic control may continue to deteriorate after sulfonylurea is added to

Metformin ^[1]. Good glycaemic control can be maintained for two years with Nateglinide/Metformin and Glyburide/Metformin treatment ^[2]. Metformin can accumulate the setting of renal impairment. Thus unmonitored use is of concern ^[3]. Pioglitazone is superior to Gliclazide in sustaining glycaemic control in patients with Type 2 Diabetes Mellitus during the second year of treatment⁷. So this study was done to find out effect of conventional and newer hypoglycemic drugs on the basis of their effectiveness in controlling blood glucose, and development of complications and requirement of insulin therapy.

METHODOLOGY

Institutional Human Ethics Committee approval was obtained. Data from 70 Type 2 Diabetes mellitus patients who have visited the Diabetic

OPD were included. Data regarding personal details, history of the present illness, investigations, oral hypoglycemic drugs, complications developed, and requirement of insulin therapy at any stage were collected from these charts. Glibenclamide, Glipizide, Gliclazide, Metformin were considered as conventional drugs. Other oral hypoglycemic drugs were considered as newer drugs.

RESULTS

Out of 71 diabetic patients males were 50.7% and females were 49.3% (**Figure 1**).

Out of 71 patients, 46.5% patients were on conventional oral hypoglycemic drugs, 23.9% Conventional + newer oral hypoglycemic drugs, 18.3% Conventional oral hypoglycemic drugs + Insulin, 11.3% were switched over to Insulin from Conventional and newer oral hypoglycemic drugs.

There was about 35% of patients were in the age group of 51-60 yrs (**Figure 2**). There was a family history of diabetes in 18% of patients and 82% of patients didn't have family history of diabetes.

35% of patients were using Glibenclamide and Metformin & rest of the patients were receiving Metformin, gliclazide, Glipizide, Metformin + Glipizide, Metformin + Gliclazide (**Figure 3**).

There was a reduction in mean fasting sugar after treatment with Conventional oral hypoglycemic drugs and conventional + newer oral hypoglycemic drugs. But there was a mean increase in fasting sugar after treatment with conventional oral hypoglycemic drugs + Insulin (**Table 1**).

52.8% of patients were having systemic hypertension and rests of the patients were having diabetic nephropathy, diabetic neuropathy, Coronary artery disease, diabetic retinopathy (**Figure 4**).

56.5 % of patients were having hypertension, 69% were having diabetic neuropathy and 50% of patients were having coronary artery disease in the conventional oral hypoglycemic drugs of patients. Diabetic retinopathy was more in the patients taking conventional + newer oral hypoglycemic drugs and diabetic nephropathy was seen only in patients who were on conventional oral hypoglycemic drugs + Insulin (**Table 2**).

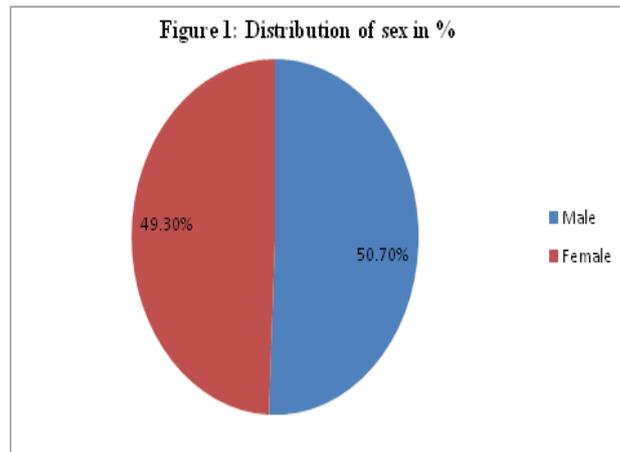


Figure 1: Distribution of sex in %

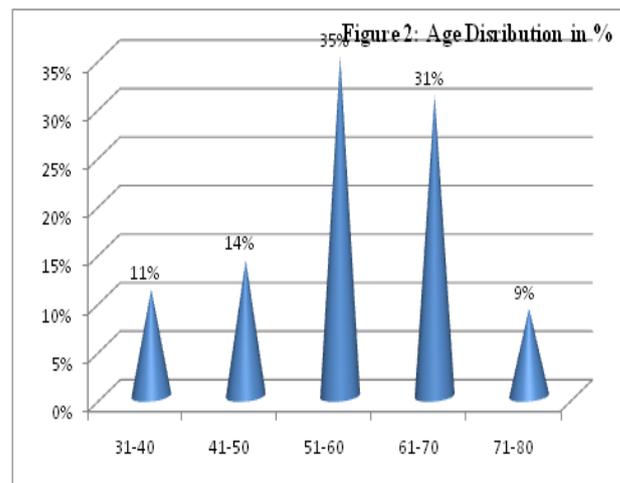


Figure 2: Age Distribution in %

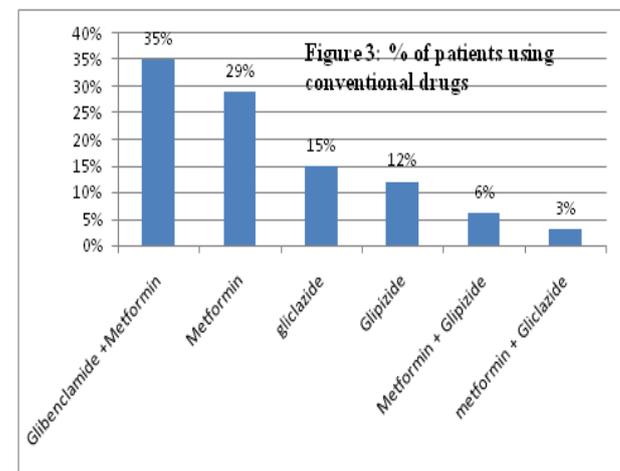


Figure 3: % of patients using conventional drugs

Table 1: Mean fasting sugar before and after treatment of drugs

	Mean fasting sugar in mg%	
	Before treatment	After treatment
Conventional oral hypoglycemic drugs	153	142
Conventional + newer oral hypoglycemic drugs	208	190
Conventional oral hypoglycemic drugs + Insulin	172	206

Table 2: % of complications

	% of Hypertension	% of diabetic neuropathy	% of coronary artery disease	% of diabetic retinopathy	% of diabetic nephropathy
Conventional oral hypoglycemic drugs	56.5	69	50	25%	0
Conventional + newer oral hypoglycemic drugs	19.5	27.8	15	50%	0
Conventional oral hypoglycemic drugs + Insulin	24	3.2	35	25%	100

DISCUSSION

- The male and female ratio was almost equal in the incidence of type 2 diabetes. This shows that the screening for diabetes is equally important in both males and females.
- About 66% of patients studied belong to the age group of 51-70 years.
- In our study only 18% of patients were having family history of diabetes.
- Majority of the patients were using Metformin with Glibenclamide combination
- There was reduction in the mean fasting blood sugar levels in all the patients except to the patients who were taking conventional oral hypoglycemic drugs + Insulin. This shows that these patients may need adjustment of insulin dose.
- Systemic hypertension was seen in 52.8% of patients. This shows that there is a need for routine monitoring of Blood pressure in all diabetics.
- Percentage of complications was more in patients taking conventional oral hypoglycemic drugs even though there was a good glycemic control.

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