Gender Based and Rational Use of Anti-Diabetic Drugs: A Survey

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Abstract

The goal of this study was to estimate the prevalence of diabetes and the number of people of all ages (both sexes) with diabetes and their medication. Patient data was collected from 512 patients in Out-patient Pharmacy (OPP) of K.M Hospital, Ananthapuramu, A.P, India. The patients are asked to fill a sheet containing a set of questions. The results shows that the prevalence of diabetes is higher in menthan women, but there are more women with diabetes than men. These findings provide an underestimate of future diabetes prevalence.

Keywords: Out-patient Pharmacy, diabetic patients, medicine, survey

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1. Introduction

Diabetes mellitus (DM) is a metabolic disorder resulting from a defect in Insulin secretion, insulin action, or both [1]. Insulin deficiency in turn leads to chronic hyperglycemia with disturbances of carbohydrate, fat and protein metabolism. As the disease progresses tissue or vascular damage ensues leading to severe diabetic complications such as retinopathy, neuropathy, nephropathy, cardiovascular complications and ulceration. Thus, diabetes covers a wide range of heterogeneous diseases. Diabetes is the most common endocrine disorder and by the year 2010, it is estimated that more than 200 million people worldwide will have DM and 300 million will subsequently have the disease by 2025 [2-4].

The WHO classification includes both clinical stages (normoglycaemia, impaired glucose tolerance/impaired fasting glucose (IGT/IFG), diabetes) an aetiological types of diabetes mellitus, identical to the ADA except that WHO group includes classification former known as gestational impaired glucose tolerance (GIGT) and GDM: fasting glucose = 7.0 mmol/L (126 mg/dL) and/or 2-h glucose = 7.8 mmol/L (140 mg/dL) after a 75-g OGTT. Diabetes mellitus may be categorized into several types but the two major types are type 1 and type 2. On the basis of
aetiology, the term type 1 and type 2 were widely used to describe IDDM and NIDDM, respectively; other specific types of diabetes and gestational diabetes. The term juvenile-onset diabetes has sometimes been used for IDDM and maturity-onset for NIDDM. On the basis of etiology, type 1 is present in patients who have little or no endogenous insulin secretory capacity and who therefore require insulin therapy for survival [3 and 6].

The two main forms of clinical type 1 diabetes are type 1a (about 90% of type 1 cases in Europe) which is thought to be due to immunological destruction of pancreatic β cells resulting in insulin deficiency; and type 1b (idiopathic, about 10% of type 1 diabetes), in which there is no evidence of autoimmunity. Type 1a is characterized by the presence of islet cell antibody (ICA), anti-glutamic acid decarboxylase (anti-GAD), IA-2 or insulin antibodies that identify the autoimmune process with β-cell destruction. Autoimmune diseases such as Grave’s disease, Hashimoto’s thyroiditis and Addison’s disease may be associated with type 1 diabetes mellitus. There is no known etiological basis for type 1b diabetes mellitus. Some of these patients have permanent insulinopaenia and are prone to ketoacidosis, but have no evidence of autoimmunity. This form is more prevalent among individuals of African and Asian Origin. Type 1 diabetes causes an estimated 5–10% of all diabetes cases or 11–22 million worldwide. In 2006 it affected 440,000 children under 14 years of age and was the primary cause of diabetes in those less than 10 years of age. The incidence of type 1 diabetes has been increasing by about 3% per year. Rates vary widely by country. In Finland, the incidence is a high of 35 per 100,000 per year, in Japan and China a low of 1 to 3 per 100,000 per year, and in Northern Europe and the U.S., an intermediate of 8 to 17 per 100,000 per year.

Type 1 diabetes was previously known as juvenile diabetes to distinguish it from type 2 diabetes, which generally has a later onset; however, the majority of new-onset type 1 diabetes is seen in adults. Studies using antibody testing (glutamic acid decarboxylase antibodies, islet cell antibodies and insulinoma-associated autoantibodies) to distinguish between type 1 and type 2 diabetes demonstrate that most new-onset type 1 diabetes is seen in adults. Adult-onset type 1 autoimmune diabetes is two to three times more common than classic childhood-onset autoimmune diabetes [3 and 5]. The number of people with diabetes is increasing due to population growth, aging, and urbanization and increasing prevalence of obesity and physical inactivity [5]. A survey shows that ne among the 10 people is diabetic [6]. Quantifying the prevalence of diabetes and the number of people affected by diabetes, now and in the future, is important to allow rational planning and allocation of resources. This report provides estimates of the prevalence of diabetes in Ananthapuramu town.

2. Research Design and Methods

Diabetic Patients profiles of 512 members were used for the study. Among these 512 patients 269 (53%) are males and 243 (47%) are females.

Methodology

Study type: Gender based study [7-9].

Study site: Out-patient Pharmacy (OPP), K.M Hospital for diabetes, Ananthapuramu, A.P. India.

Study duration: The study was carried out from 26th February to 1st March 2013.

Inclusion and exclusion criteria

All the diabetes patients who visited the OPP during the study period were enrolled in the study. In case if a diabetic patient has not taken medicines from OPP, those patients were excluded.

Operational modality

Patients were enrolled in the study after getting a verbal informed consent. Patients were interviewed based on the study objectives. The details were entered in the structured patient profile form. The filled patient profile form was analysed for various parameters like age distribution and gender of patients, duration of diabetes, type of Diabetes, how often is your Blood Glucose Level measured, How long have you had Diabetes, which Dosage form they are using, which drug you are using for Diabetes (Single drug/Combination of two drugs/ Combination of more than two drugs [11-15].

This is a short diabetes patient survey. We collected data from patients with the following questionnaire.

1. Age
   A. 1-15
   B. 16-30
   C. 31-45
   D. 46-60
   E. 61-75
   F. 76 and older

2. Sex
   A. Female
   B. Male
3. Type of Diabetes
A. Type I
B. Type II
C. Gestational Diabetes
D. I don’t know

4. How often is your Blood Glucose Level measured?
A. Once a week
B. Once in a month
C. Once in 6 month
D. Once in a year

5. How long have you had Diabetes?
A. Less than a year
B. 1 to 10 years
C. More than 10 years

6. Which Dosage form they are using?
A. tablets
B. Insulin Injections
C. Both

7. Which drug you are using for Diabetes (Single drug)?
A. Glipizide
B. Glibenclamide
C. Gliclazide
D. Glimepiride
E. Metformin HCl

8. Which drug you are using for Diabetes (Combination of two drugs)?
A. Glibenclamide+MetforminHCl
B. Rosiglitazone + Gliclazide
C. Glimepiride + Gliclazide
D. Glipizide + Metformin HCl
E. Glipizide + Metformin HCl
F. Glimepiride + Metformin HCl

9. Which drug you are using for Diabetes (Combination of more than two drugs)?
A. Gliclazide+ Glibenclamide+ Metformin HCl
B. Glipizide + Glibenclamide+ Metformin HCl
C. Glimepiride + Glibenclamide+ Metformin HCl
D. Glipizide+ Metformin + Glibenclamide+ Metformin HCl
E. Gliclazide + Metformin + Glibenclamide+ Metformin HCl

3. Results and Discussion

Age range
Among the age groups patients with 46-60 years range were found to be more (231 patients)(45%). It was represented in column chart (Fig.1)
Sex
Among the males and females males were little higher in number (53%) with diabetes. It was represented in pie chart (fig.2).

![Figure 2. Gender number of diabetic patients](image)

Type of Diabetes
Among the type I, type II and gestational diabetes. Type II diabetes were found to be more in number (319 patients) (62%). It was represented in column chart (fig.3).

![Figure 3. types of diabetes](image)

How often is your Blood Glucose Level measured?
Among the 512 patients 320 patients (62.5%) were monitoring their blood glucose levels once in a month rather once in a week, once in 6 months and once in a year. It was represented in column chart (fig.4)

![Figure 4. Frequency of blood glucose monitoring](image)
How long have you had Diabetes?

The number of diabetic patients were increased in past decade (322 patients [63%] among 512). It was represented in column chart (fig.5).

![Figure 5. Graph representing how long the patient is suffering with diabetes](image)

Which Dosage form they are using

More than 72% of patients were using oral tablets than Insulin injections for diabetes. It was represented in column chart (fig.6).

![Figure 6. Dosage form of medicament using for diabetes](image)

Which drug you are using for Diabetes (Single drug)?

Out of 51 patients who were using single drug for diabetes, metformin alone users are found to be more (30%) It was represented in column chart (fig.7).

![Fig.7. Single drug users for diabetes](image)
Which drug you are using for Diabetes (Combination of two drugs)?
Out of 124 patients who were using combination of two drugs for diabetes, Glibenclamide+ Metformin HCl combination users are found to be more (27%). It was represented in column chart (Fig.8).

![Combination of two drugs users](image1)

Figure 8. Combination of two drugs users for diabetes

Which drug you are using for Diabetes (Combination of more than two drugs)?
Out of 197 patients who were using combination of three drugs for diabetes, Gliclazide+ Glibenclamide+ Metformin HCl combination users are found to be more (40%). It was represented in column chart (fig.9).

![Combination of three drugs users](image2)

Figure 9. Combination of more than three drugs users for diabetes

4. Conclusion
The survey revealed that 45% of patients of age groups 46-60 years were found to be more. The result indicates that the occurrence of diabetes is higher in men than women, but there are more women with diabetes than men. Irrespective of gender type II diabetics were comparatively more than other types of diabetics. A good percent of diabetics were regularly monitoring the blood glucose levels once in a month. Among the patients more than 63% of people were suffering with diabetes. More than 72% of patients were using oral tablets than Insulin injections for diabetes. Among single drug and combination drug therapy, patients with combination of Gliclazide+ Glibenclamide+ Metformin HCl users are found to be more.

5. References


