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FREQUENCY OF DIFFERENT MEDICATIONS IN CHRONIC DISEASES AT TERTIARY CARE HOSPITAL LARKANA, SINDH, PAKISTAN

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ABSTRACT

The aim of current study was to evaluate the prescribing trend of Antihypertensive mediations and Antidiabetics medications among hypertensive and diabetic patients respectively.

A descriptive, observational and prospective study was conducted to evaluate the prescribing frequency of antihypertensive and antidiabetic medications from out-patient department of a tertiary care hospital Larkana, Sindh, Pakistan. A total of 400 prescriptions were enrolled via purposive sampling and then evaluated on the basis of approved proforma. Out of 400 prescriptions, 44.5% had hypertension and 55.5% had diabetes mellitus including type I and type II. Further 61.75% were belonged to Male gender and 38.25% were belonged to female gender. Moreover maximum number of patients had Grade 1 Blood Pressure i.e. 23.60%. Telmisartan and Atenolol were the most prescribing antihypertensive medication among hypertensive patients and its percentage was 13.48% respectively while among diabetic patients, Metformin was the most common prescribing drug and its percentage was 31.98%.

The study clearly indicates that mostly the burden of diabetes is more in our society; further male gender was dominant as compared to female gender. The trend was also observed during this study i.e. among hypertensive therapy the Telmisartan (Angiotensin receptors blockers) and Atenolol (Beta blockers) were the most common medications prescribed and among diabetic patients metformin was common prescribing agent.

Keywords: Prescribing trend, Antihypertensives, Antidiabetics, Larkana, Sindh

INTRODUCTION

Prescriptions are the legal instructions from the doctor, dentists and any other person who have authorized by the medical council to the patients as well as Pharmacists. The instructions given by the doctor to the pharmacist were from preparations of different extemporaneous medications to the dispensing of the drugs including counseling. It also includes the instructions to the patients that when the medicines are taken by the patients, at what time and at what frequency. Moreover the medicines are taken with the help of water or any other type of liquid, either taken in empty stomach or with food. The prescriptions are also called as 3P because it includes three major pillars of health care system or stake holders i.e. Physician, Pharmacist and Patients. These 3Ps are interlinked with each other and with the proper communication between these three stake holders the patients get relief from their disease and reduce the cost of medicines[1].

The current study was based on evaluations of Prescriptions that contain antihypertensive and anti diabetic medications among hypertensive and diabetic mellitus (Including type I and type II patients) from the out-patient department of a tertiary care hospital of Larkana, Sindh Pakistan. High blood pressure and diabetes are chronic diseases of our society. The risk factors are more if patients are hypertensive than the chances are increased to develop the diabetes in that patient and vice versa. High blood pressure is the most common term used it means that the pressure of blood is increased beyond the normal values. The normal values are 120mmHg and 80 mmHg. The upper range or systolic range is 120mmHg and lower range or diastolic pressure is 80mmHg. If the values are more than that it means the patients may hypertensive. If the reading of blood pressure is more than 140/90mmHg comes twice than the patients have confirmed diagnosis of Hypertension[2-3]. In other terms it is also called as Hypertension or in

our society it is also called as silent killer. Depending upon the risk factors there are two types of hypertension. Primary and Secondary hypertension. The most common type of hypertension is primary and the percentage is almost 98% while remaining only 2% have the secondary type of hypertension present in individuals. Primary hypertension is also known as essential hypertension and there is no any cause or etiology of that type of hypertension but the

secondary type of hypertension have known cause or etiology like kidney not functioning well or compromised, diabetes, resistance of insulin, Alcoholic patients, pregnancy, renal vascular disease, various types of syndromes like cons and cushings. Various drugs may also cause this type of hypertension like contraceptive medications; non steroidal anti inflammatory medications and some mimetic agents may cause high blood pressure [4].

Table 1: Classification of Hypertension (WHO)[5-6]

Category	Systolic Bp(mmHg)	Diastolic Bp(mmHg)
Blood Pressure Optimal	< 120	<80
Blood Pressure Normal	<130	<85
Blood Pressure High Normal	130-139	85-89
Hypertension Grade 1	140-159	90-99
Hypertension Grade 2	160-179	100-109
Hypertension Grade 3	> 180	>110

Diabetes is also one of the chronic diseases that exist throughout the life of the patients. It may define as increased glycemic level or hyperglycemia due to insufficient or absolute deficiency of Insulin that may leads to improper metabolism of carbohydrate, proteins and fats. According to international guidelines there are four types of diabetes i.e. Type 1 or "Insulin-Dependent Diabetes Mellitus" (IDDM) , Type2 or "Non Insulin-Dépendent diabètes mellitus " (NIDDM), Gestation diabetes Mellitus and last one is other types of diabetes mellitus. In type I diabetes mellitus

there is no any insulin production in the beta cells of pancreas resultantly these type of patients are totally dependent on exogenous insulin. There is another type of diabetes that mostly occurs in juvenile stages and the cuase is autoimmune is also under the category of Type I diabetes.

Moreover the destruction of beta cells is due to immune response of the individual that may leads to no production of insulin and ultimately glycemic levels are increased. Depending upon the physiology these destruction sometimes more and sometimes less means no any equilibrium rate. Mostly

the rate is high noted in children as compared to adults [7]. While in another type of type 1 i.e. Latent autoimmune diabetes in adults (LADA) in which the destruction of beta cells is slow as compared to previous one. Due to high glycemic levels within the type 1 patient's there are chances to develop the ketone bodies such as butyric acid and the condition is called ketoacidosis that may also leads to infection and then coma [8]. So type I patients are at more risk as compared to type II patients because they totally depend upon insulin and also risk of ketone bodies too[9-10]. This type of diabetes is more common in countries if sub-continent Asia and Africa [11]. The 2nd type of diabetes is also known as is also known as non-insulin dependent diabetes mellitus (NIDDM). This type of diabetes is mostly present in adults usually after the age of 30. In this type of diabetes beta cells of pancreas secrete insulin but this insulin is resistant it means there is relative deficiency of insulin. Mostly patients can be on oral hypoglycemic agents for their management [12-13]. The type II patients if untreated or the hyperglycemic levels are not controlled than the complications may also develop such as microvascular and macrovascular complications [14-16].

METHODOLOGY

The current study was descriptive, observational and prospective based study in which 400 prescriptions was collected from tertiary care hospital of Larkana, Sindh, Pakistan. The collection technique was based on purposing sampling because only hypertensive and diabetic patients were the part of current study. The duration of study was 01 year. The data was collected and then transferred in an approved proforma. The samples were recruited on the basis of inclusion and exclusion criteria and then data were transferred in an approved proforma.. All diabetic and hypertensive patients containing prescriptions were included in my study and other than that were excluded from the study. The data were analyzed descriptively with the help of Microsoft excel.

RESULTS AND DISCUSSION

A total of 400 prescriptions were collected from a tertiary care hospital of Larkana, Sindh, Pakistan.

Table No: 02 described the number of prescriptions collected from out-patient department of tertiary care hospital and it was found that out of 400 Rx, 178 (44.5%) were belonged to hypertensive patients and remaining 222(55.5%) belonged to diabetic

mellitus patients that includes both type I and type II patients.

Table No: 03 described the number of prescriptions based on gender collected from out-patient department of tertiary care hospital and it was found that out of 400 Rx, 247 (61.75%) were belonged to male patients and remaining 153 (38.25%) belonged to female patients.

Table No: 04 described the blood pressure status among hypertensive patients and it was found that out of 178 patients, maximum number of patients had Grade 1 blood pressure and its frequency was 42 with 23.60% while remaining frequencies were also showed in above table 4

Table No 05 described the frequencies of antihypertensive medications among hypertensive patients and it was found that out of 178 patients, maximum number of patient were on Telmisartan and Atenolol and its frequency were 24 (13.48) respectively followed by Losartan and its frequency was 21 with percentage of 11.80% while remaining were also mentioned in above table 5.

Table No 06 described the frequencies of antidiabetic medications among diabetic patients and it was found that out of 222 patients, maximum number of patient was on Metformin i.e. Biguanide group and its frequency were 71 (31.98%) followed by Linagliptin and its frequency was 23 with percentage of 10.36% while remaining were also mentioned in above table 6.

Table: 02: Prescptions based on chronic disease:

Disease	No: of Prescptions	Percentage
Hypertension	178	44.5%
Diabetes Mellitus	222	55.5%
Total	400	100%

Table: 03: Prescptions based on Gender:

Gender	No: of Prescptions	Percentage
Male	247	61.75%
Female	153	38.25%
Total	400	100%

Table: 04: Blood Pressure Status among Hypertensive Patients

Blood Pressure	Frequency	Percentage
Optimal Blood Pressure	37	20.79%
Normal Blood Pressure	28	15.73%
High Normal Blood Pressure	19	10.67%
Grade 1 Blood Pressure	42	23.60%
Grade 2 Blood Pressure	29	16.29%
Grade 3 Blood Pressure	14	7.86%
Unidentified Blood Pressure	9	5.06%
Total	178	100%

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Table: 05: Prescribing Frequency of Antihypertensive Medications

Antihypertensive Medications	Frequency	Percentage
Captopril	14	7.86%
Telmisartan	24	13.48%
Bisoprolol	7	3.93%
Carvedilol	6	3.37%
Valsartan	11	6.18%
Felodipine	4	2.25%
Verapamil	6	3.37%
Benzapril	13	7.30%
Losartan	21	11.80%
Metoprolol	2	1.12%
Furosemide	6	3.37%
Spiranolactone	3	1.68%
Atenolol	24	13.48%
Propanolol	13	7.30%
Enalapril	10	5.62%
Ramipril	12	6.74%
Candesartan	2	1.12%
Total	178	100%

Table: 06: Prescribing Frequency of Antidiabetics Medications

Antidiabetics Medication	Frequency	Percentage
Metformin	71	31.98%
Glimepride	16	7.21%
Glipizide	21	9.46%
Pioglitazone	10	4.50%
Insulin Regular	7	3.15%
Chopramide	3	1.35%
Glibenclamide	16	7.21%
Nateglinide	11	4.95%
Exenatide	5	2.25%
Sitagliptin	10	4.50%
Linagliptin	23	10.36%
Insulin N	14	6.31%
Insulin 70/30	15	6.76%
Total	222	100%

CONCLUSION

The study clearly indicates that mostly the burden of diabetes is more in our society; further male gender was dominant as compared to female gender. Moreover grade 1 hypertension was also found commonly in hypertensive patients. The trend was also observed during this study i.e. among hypertensive therapy the Telmisartan (Angiotensin receptors blockers) and Atenolol (Beta blockers) were the most common medications prescribed and among diabetic patients metformin was common prescribing agent.

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