

“A SURVEY OF DRUGS USED IN LIFESTYLE DISORDERS: HYPERTENSION AND DIABETES MELLITUS”

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Abstract –

BACKGROUND - This project aims to provide a comprehensive survey of the various pharmaceutical treatments available for managing lifestyle disorders, specifically focusing on diabetes and hypertension. Both conditions have become prevalent in modern society due to factors such as sedentary lifestyles, poor dietary habits, and increased stress levels. The study investigates the most commonly prescribed classes of drugs for these disorders, including oral hypoglycemics, insulin therapy, diuretics, ACE inhibitors, and calcium channel blockers, among others. By reviewing the current literature and conducting a survey of healthcare providers and patients, this project seeks to identify the most effective treatment regimens, while considering the challenges of managing chronic diseases in a lifestyle-oriented context. The findings aim to contribute to the optimization of treatment strategies, providing valuable insights for both clinicians and patients in managing these increasingly common health issues. **OBJECTIVE**- This survey was conducted to assess the prevalence of the medications used in treatment of diabetes and hypertension. **MATERIAL AND METHOD**-112 patients irrespective of age and sex with established diabetes and hypertension were interviewed during the 3 weeks of time period using structured questionnaire. Through extensive literature review and clinical data evaluation, the paper outlines the most commonly prescribed drugs for diabetes and hypertension while highlighting trends in personalized medicine and biologic therapy. By systematically compiling therapeutic approaches, this study seeks to assist clinicians, researchers, and policymakers in refining treatment protocols and improving patient outcomes. **RESULT**- A total number of 112 patients were interviewed and among them, 16% (15) were treated/ prescribed with telmisartan, 10.6% (10) were treated/ prescribed with nifedipine for hypertension and 17.1% (7) were treated/ prescribed with Glimepiride and Metformin, 12.2% (5) were treated/ prescribed with Glycomet 500 Metformin etc.

Keywords: Lifestyle disorders, Hypertension, Diabetics, survey etc.

Introduction –

Hypertension-

Hypertension is a condition characterized by elevated systolic and diastolic blood pressure, with increased prevalence with age. The 2017 ACC/AHA guidelines define hypertension as systolic BP ≥ 130 mmHg or diastolic BP ≥ 80 mmHg¹. It is classified into stages: normal, elevated, stage 1, stage 2, and hypertensive emergency².

There are four major types: essential (primary), secondary, malignant, and resistant hypertension. Primary hypertension has no identifiable cause, while secondary hypertension results from underlying conditions. Malignant hypertension is life-threatening and causes organ damage. Resistant hypertension is difficult to control and is associated with increased cardiovascular risk³.

Diabetes Mellitus (DM)-

Diabetes mellitus is a metabolic disorder involving impaired insulin secretion or function, leading to hyperglycemia. It includes type 1 (autoimmune), type 2 (insulin resistance), and gestational diabetes⁴. Type 1 diabetes accounts for about 5% of cases, while type 2 comprises ~95%, often associated with obesity and lifestyle factors⁵.

Type 1 is caused by autoimmune destruction of pancreatic β -cells. Symptoms include polyuria, polydipsia, weight loss, and fatigue. Type 2 is associated with insulin resistance and affects 5–7% globally⁶. Gestational diabetes occurs during pregnancy due to hormonal changes affecting glucose regulation⁷. Contributing factors include obesity, glucocorticoid excess, growth hormone overproduction, PCOS, and lipodystrophy. Common symptoms include increased thirst, hunger, urination, fatigue, and vision problems⁸.

Treatment –

Treatment of Hypertension-

Hypertension treatment involves both non-pharmacologic and pharmacological approaches. Non-pharmacologic treatment includes taking after, maintaining healthy swab limits, weight loss, physical activity, and direct liquor intake. High-impact exercise can help reduce systolic BP and diastolic BP⁹. Direct liquor intake is recommended for all cases of hypertension¹⁰. A high fiber and low-fat diet can also help reduce systolic BP and diastolic BP¹¹.

Pharmacological treatment includes thiazide-type diuretics, calcium channel blockers, angiotensin-converting chemical (Pro) inhibitors, and angiotensin II receptor blockers (ARBs). Common examples include diuretics, ACE inhibitors, ARBs, calcium channel blockers, beta-blockers, alpha-1 blockers, alpha-2 antagonists, direct vasodilators, and renin inhibitors¹².

Diuretics increase sodium and water excretion by the kidneys, reducing blood volume. ACE inhibitors block the conversion of angiotensin I to angiotensin II, leading to vasodilation. ARBs block angiotensin II

receptors, preventing vasoconstriction. Calcium channel blockers inhibit calcium entry into smooth muscle cells, causing vasodilation and lowering heart rate. Beta-blockers block beta-adrenergic receptors, reducing heart rate and contractility, leading to lower blood pressure. Alpha-1 blockers block alpha-1 adrenergic receptors, causing vasodilation. Direct vasodilators relax smooth muscle in blood vessels, leading to vasodilation. Renin inhibitors inhibit renin formation, preventing the formation of angiotensin I¹².

Treatment of diabetes -

Three blood tests are available to analyse prediabetes and diabetes: casual plasma glucose/ irregular plasma test, fasting plasma glucose (FPG), and verbal glucose resistance test. Casual plasma glucose is the easiest test, requiring fasting for a few hours before taking it¹³. Fasting plasma glucose is closely related to a 2-hour plasma glucose level of ≥ 11.1 mmol/L in a 75g verbal glucose resistance test (OGIT), predicting retinopathy progression¹⁴. Oral glucose versatility test is used to measure 2hr blood glucose levels of 200mg/dl or higher.

The O'Sullivan test is used to diagnose gestational diabetes¹⁵.

Treatments for diabetes depend on the individual and the type of diabetes. For Type 1 diabetes, insulin treatment is the primary treatment¹⁶, while Type 2 diabetes treatment is individualized and includes lifestyle modification and medication based on severity and duration¹⁷.

Pharmacological options include:

Biguanides (e.g., Metformin): decrease hepatic glucose output¹⁸

Sulfonylureas: increase insulin secretion¹⁹

Meglitinides, alpha-glucosidase inhibitors, thiazolidinediones: target insulin sensitivity or carbohydrate digestion²⁰

MATERIAL AND METHOD –

The survey of patient receiving anti diabetic and anti-hypertensive treatment was carried out. The subjects were from town called Shirala. The surveyor visited the medical shops and attended the patients during evening time, two hours per day for 3 weeks.

It was a questionnaire based observational study. The information collected included the demographic details (age, sex), past medical history, present drug treatment, description, assessment and treatment of diabetes and hypertension.²¹

RESULT AND DISCUSSION –

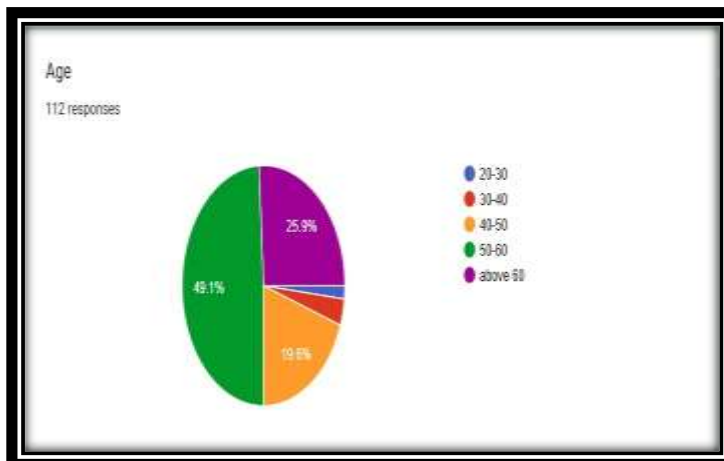


Figure no 1: Distribution of Patients among different Age Groups

The patients that were surveyed are categorised into groups. The highest numbers of patients were found to be from the age group of 50 to 60 years while the lowest incidence found in the group of 20 to 30 years. These findings corroborate with established findings of lifestyle disorders in old age.

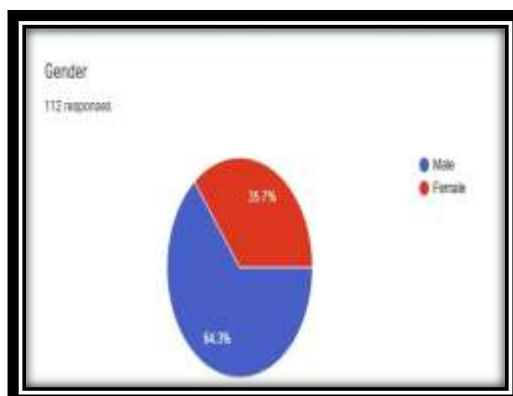


Figure no 2: Distribution of Patients among gender

The patients that were surveyed are categorised into gender. The highest numbers of patients were found to be male which comprises 64.3% of total responses while the 35.7% found in the female .May reflect a higher prevalence of lifestyle disorders such as hypertension and diabetes in males, or greater willingness/availability among men to respond to health-related surveys.

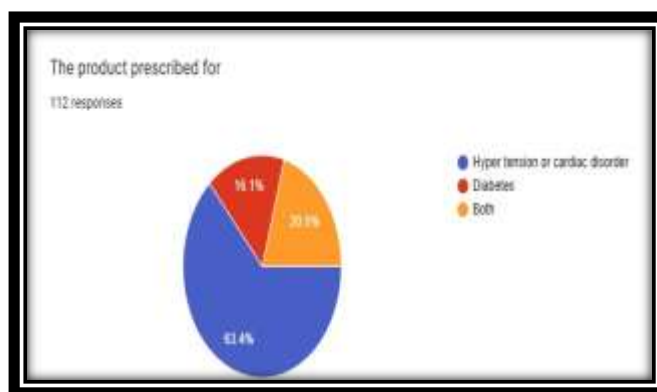


Figure no 3: Disease wise distribution

The patients that were surveyed are disease wise. The highest numbers of patients were found to be cardiac disorder which comprises **63.4 %** of total responses. It may reflect the widespread prevalence and clinical attention given to hypertension in the surveyed population. Both Hypertension/ and Diabetes patients were **20.5%** of the responses. It suggests a significant overlap between diabetes and hypertension in patients, which is clinically common due to shared risk factors like obesity, sedentary lifestyle, and aging. These individuals require more comprehensive care and polypharmacy management. Only **16.1%** of the respondents shows that a notable portion of the population is being treated solely for diabetes, possibly indicating early-stage or isolated cases without concurrent cardiovascular issues. The data reveals that **hypertension or cardiac disorders alone** are the most common conditions for which medications are prescribed, followed by cases involving **both diabetes and hypertension**, and lastly, **diabetes alone**.

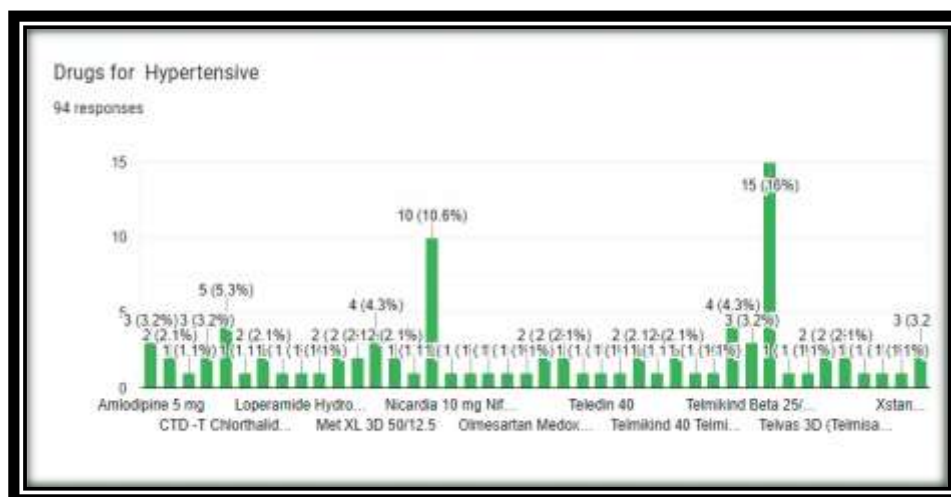


Figure no 4: Drug used for the treatment of hypertension

The physician were prescribed hypertensive drugs to patient's brand wise were surveyed. Telma 40 (Telmisartan) Tablets is the most prescribed, with 15 responses (16%). Nicardia 10 mg is the second most prescribed, with 10 responses (10.6%). while Amlodipine 5 mg and Xstan each had 3 responses (3.2%). Teledin 40 and Telvas 3D also had moderate mentions (around 4.3% each with 4 responses). Most other drugs, including CTD-T Chlorthalidone, Met XL 3D 50/12.5, Olmesartan Medoxomil, and others, had 1 or 2 responses each, making up only about 1%–2% individually. Telma 40 Telmisartan Tablets is the leading drug prescribed for hypertension, with most other drugs prescribed much less frequently.

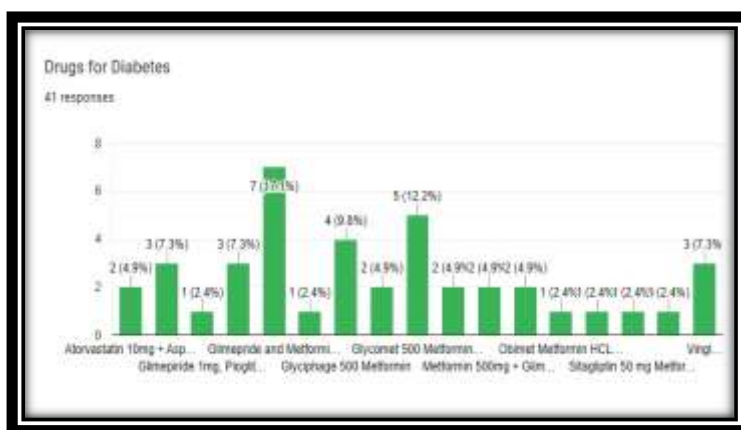


Figure no 5: Drug used for the treatment of Diabetes

The bar graph presents the distribution of drugs prescribed for diabetes based on 41 responses: **Glimepiride and Metformin** is the most prescribed drug, with **7 responses (17.1%)**. **Glycomet 500 Metformin** follows with **5 responses (12.2%)**. **Glycophage 500 Metformin** was prescribed in **4 cases (9.8%)**. **Glimepiride 1mg, Pioglitazone** and **Vinglitor** were each prescribed **3 times (7.3%)**. Several other drugs, including Atorvastatin 10mg + Aspirin, Metformin 500mg + Glimepiride, and Sitagliptin 50 mg Metformin, were prescribed to a smaller number of respondents (around **2.4%–4.9%** each). Glimepiride and Metformin combination is the most commonly prescribed drug for diabetes.

Conclusion – The present study aimed to evaluate the demographic profile, and current medication usage among diabetes and hypertension patients. Based on the analysis of 112 responses collected through the survey. In conclusion, this study highlights important demographic (age, gender), drugs prescribed for diabetes and hypertension management. The 75% responses of the groups above 50 implies the prevalence of these lifestyle disorders in elderly people. The age factor has been evident to be an important risk factor in these disorders. Preventive medical check-up can lead to early diagnosis and thereby reduction in drug usage can be possible. The higher incidence of the disorders in males is significantly higher than in females but a scientific substantiation cannot be established. The other gender was not at all represented in the survey. This may be due to lack of awareness or lack of exposure to such surveys of the people of other genders. The data reveals that **hypertension or cardiac disorders alone** are the most common conditions for which medications are prescribed, followed by cases involving **both diabetes and hypertension**, and lastly, **diabetes alone**. These findings highlight the dominant burden of cardiovascular diseases in the population surveyed, while also underscoring the significant coexistence of diabetes and hypertension. Telmisartan has emerged as the most prescribed drugs among the patients that were surveyed. Among the drugs used for diabetes, Glimepiride and Metformin combination is the most commonly prescribed drug for diabetes, followed by Glycomet 500. Future efforts should aim to strengthen patient counselling, and further improve adherence to controller medications to reduce the burden of diabetes and hypertension in the community.

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