

In addition, with Diabetes Mellitus were complications like Nephropathy (n=13), Retinopathy (n=17), Diabetic foot (n=17) and diabetic foot with amputation (n=5).

### **Conclusion**

According to our study, we concluded that with modifiable risk factors patients majorly lacking physical activity and most of them were smoking making it a leading risk factor for prevalence of Diabetes Mellitus. Non modifiable risk factors, patients were mostly of more than 45 years of age making them more prone to diabetes mellitus. The maximum patients are almost in a decompensated state with complications of diabetic foot in which 5 were amputated, nephropathy and retinopathy. The rest of them were in sub compensated state with mild nephropathy symptoms and others in compensated state. Modifications healthy diet (Foods to Emphasize: Whole grains, Fruits, Vegetables, Lean proteins, Healthy fats; Foods to Limit/Avoid: Sugary drinks, Refined carbohydrates, Saturated and trans fats, High-sodium foods; to Meal Planning Tips: Eat regular meals, choose complex carbohydrates, incorporate protein and healthy fats, monitor carbohydrate intake), regular physical activity, weight management, quit smoking and drinking alcohol and stress reduction. Medications: Oral hypoglycaemic agents, insulin therapy, and injectable medications. Monitoring Regular blood glucose monitoring, HbA1c testing, and lipid profile monitoring.

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## **ARTERIAL HYPERTENSION AND EFFECTIVENESS OF TREATMENT**

### **Introduction**

Arterial hypertension (AHT) is the leading cause of death worldwide and is one of the most important public health problems. Arterial hypertension is a major cardiovascular risk factor with an increasing incidence [1]. Hypertension is defined by increasing blood pressure (BP) above 140/90mmHg. The World Health Organization (WHO) [2] defined AHT as a persistent increase in systolic BP values above 140mmHg and/or diastolic  $\geq 90$ mmHg in persons not receiving antihypertensive therapy. The 2018 ESH-ESC guidelines recommend that the first therapeutic goal should be to reduce values below 140/90mmHg for all patients. If treatment is well tolerated, values should be lowered to 130/80mmHg or even below for most patients.

In most patients below 65 years of age it is recommended to decrease the systolic blood pressure (SBP) in the range 120-129mmHg [3]. The prevalence of AHT increases with age, especially in over 30 years old patients. AHT has been called a “silent killer” because it is mostly undiagnosed and untreated, which leads to a silent impairment of blood vessels, heart, brain and kidneys. The BP reduction will lead to a decreased risk of stroke, chronic kidney disease, heart failure, aortic dissection, acute coronary events or even death. In order to lower the BP we have several methods at hand, which range from changing the lifestyle to antihypertensive medication and even cardiovascular interventions such as renal denervation. According to the new ESC/ESH guideline of 2018, it is recommended that antihypertensive treatment can be considered even at high normal BP values (130-139/85-89mmHG) if the cardiovascular risk is very high when associated with ischemic heart disease. Except for a few cases of secondary AHT, most cases cannot be cured [4]. The main classes of drugs used in the treatment of AHT are angiotensin II conversion enzyme inhibitors, angiotensin II receptor blockers, beta blockers, calcium channel blockers and diuretics (thiazide and thiazide-like) [5].

### ***Goal***

This study aimed to investigate the prevalence of arterial hypertension in different age groups, as well as the treatment and compliance with treatment, among patients attending Gomel State Hospital Number 3.

### ***Material and methods of research***

We did a cross-section study 30 patients with arterial hypertension to understand its prevalence among different age group and their compliance to the treatment in the therapeutic department of Gomel State Hospital No.3 in December 2024. Questions asked to them were about their age, since how long are they having arterial hypertension, which antihypertensive drugs are they taking and are they compliant to their treatment. After collecting the information, later analysed the statistics and depicted them in tabular and graphical manner.

### ***The results of the research and their discussion***

On Analysing the data of prevalence arterial hypertension in different age group, we found that it was diagnosed more between the age group of 45–65.

Table 1 – Age and Respective Treatment Being Used

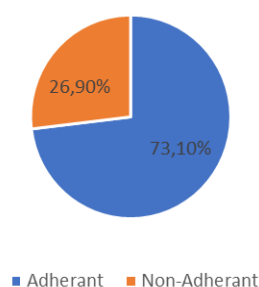
TREATMENT	35–44 (10 patients)	45–54 (8 patients)	55–64 (6 patients)	65–75 (6 patients)	35–75 (total 30)
ACE INHIBITORS	4(13.3%)	5(16.7%)	3(10%)	4(13.3%)	16(53.3%)
ANGIOTENSIN RECEPTOR BLOCKER	1(3.3%)	2(6.7%)	1(3.3%)	2(6.7%)	6(20%)
CALCIUM CHANNEL BLOCKERS	2(6.7%)	3(10%)	2(6.7%)	3(10%)	10(33.3%)
THIAZIDES	1(3.3%)	2(6.7%)	2(6.7%)	3(10%)	8(26.7%)
Total	8	12	8	12	40

On analysing the above data, most common class used among those 30 patients was **ACE Inhibitors (16 patients)**. And among which 16 patients were on monotherapy and 14 patients were on combined therapy.

Table 2 – Adherent and Non-Adherent to Treatment

	35–44	45–54	55–64	65–75
ADHERENT	–	YES	YES	YES
NON-ADHERENT	YES	–	–	–

Compliance To Treatment



*Figure 2 – Compliance to Treatment*

This finding is consistent with current guidelines that recommend ACE inhibitors as a first-line treatment for arterial hypertension [6].

It was noted:

Age below <55 years were prescribed ACE inhibitors as first line (Captopril most commonly prescribed drug).

Age above >55 years were prescribed Calcium Channel Blockers as first line (Amlodipine most commonly prescribed drug).

On analysis about 26.90% patients were young coming under the age group of 35–44 was non-adherent; this is because of unawareness of the prevalence of their disease and negligence towards taking their medication. On the other hand, age above >45 years (73.10%) were adherent and compliant to their treatment with regular follow ups to the polyclinic which resulted in achieving optimal and controlled blood pressure. However, the study also found that only 40% of patients achieved optimal blood pressure control, which is lower than the target rate of 50% recommended by the European Society of Cardiology[5]. This finding suggests that there is room for improvement in the management of arterial hypertension in this population. The results of this study suggest that arterial hypertension is a significant public health problem in Belarus, and that there is a need for improved management of this condition. The finding that only 40% of patients achieved optimal blood pressure control suggests that there is room for improvement in the management of arterial hypertension in this population. The study's findings also highlight the importance of addressing non-adherence to treatment, which is a significant problem in this population. Strategies to improve adherence, such as patient education and counselling, may be effective in improving blood pressure control and reducing cardiovascular risk.

### **Conclusion**

This study demonstrated a high prevalence of arterial hypertension among patients attending Gomel State Hospital Number 3. Most patients received monotherapy, but only 40% achieved optimal blood pressure control. 73.10% were adherent to treatment and older people were more compliance to treatment. 26.90% were non-adherence to treatment, a significant problem among the young age group, highlighting the need for improved patient education and counselling.

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## DIAGNOSTICS OF HEREDITARY SPHEROCYTOSIS

### **Introduction**

Hereditary spherocytosis also known as Congenital Spherocytosis (CS) is a hereditary hemolytic anemia that presents with spherically shaped red blood cells (RBCs) due to abnormal proteins of its membrane. RBCs cannot maintain their original shape which is biconcave in nature because of mutations in genes of the membrane proteins that help in its structural stability. Abnormal structure of the membrane proteins namely spectrin, ankyrin, band 3, and band 4.2, plays a huge role in development of CS. To explain further, the mutations of the listed genes encoding membrane proteins is considered the primary etiology. Pathogenesis: Abnormal proteins of erythrocytes' membranes lead to a defect in connection between the cytoskeleton of erythrocyte with its lipid bilayer which is on the surface. This defect can lead to a loss of RBC membrane stability and deformability with progressive membrane lipid bilayer loss in the microvasculature. Destruction of the membrane can lead to spherocytosis, a drop in mean corpuscular volume (MCV), an increase in mean corpuscular hemoglobin concentration (MCHC), and increased osmotic fragility of RBCs. CS clinical presentations depend on its severity and mutations. To determine the pathomorphology of CS, blood smears are viewed under a microscope which shows small sphere-shaped cells that are pale at the periphery and dense. Diagnostic methods typically include a complete blood count, reticulocyte count, and peripheral blood smear, which reveals spherocytes. To confirm the diagnosis, a binding test called EMA (eosin-5-maleimide) and an osmotic fragility test are done [1]. Epidemiologically, Hereditary spherocytosis is the most common genetic hemolytic disease found amongst those of Northern Europe and North America region. It is rarely seen among others. It is observed in 1 of 2000 individuals, with a significant number of asymptomatic cases being undiagnosed [2]. Complications of CS are namely: stones formation in gallbladder, enlarged spleen and risk of infection due to splenectomy [3].

Morbidity associated with CS can be significant, particularly due to complications like anemia and splenic dysfunction, while mortality is insignificantly low in treated cases [5]. Males and females are equally predisposed, but some studies suggest a slight male predominance [4].