

Table 1 – P, Q25,Q75 values

Values	Group 1	Group 2	p-value
Left ventricular mass	135,7 [108,4–168,4]	175,8 [141,9–209,5]	0,0098*
Post wall thickness(D)	7 [7–9]	9 [7–10]	0,0237*
I/V septal thickness	8 [8–9]	10 [9–11]	0,0297*
Ascending section of aorta	30 [29–33]	38 [34–40]	0,0000
Left atrium ant post size	40 [35–43]	41 [37–44]	0,2563*
Left atrium volume	56 [44–62]	68 [59–83]	0,0094*
Left ventricle end diastolic size	49 [47–52]	53 [49–57]	0,0489*
Left ventricle end systolic size	29 [25–32]	31 [28–34]	0,1031*
Age	57 [48–62]	67 [65–73]	0,0000

### **Conclusions**

These results underscore the importance of considering the unique cardiac structural changes that occur in patients with IHD, which may have implications for the management and treatment of these individuals to improve outcomes and quality of life. This suggests that the presence of both hypertension and IHD may have a synergistic effect on the heart, leading to more pronounced cardiovascular complications and potentially worsening cardiac function. It underscores the importance of managing both conditions effectively to reduce the risk of adverse outcomes and improve overall heart health.

### **LITERATURE**

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**N. Palliyaguruge Abeywickrama, Gunarathna Umesha Niranji**

*Scientific Supervisor: Ph.D. E. G. Malaeva*

*Educational Establishment*

*“Gomel State Medical University”*

*Gomel, Republic of Belarus*

## **COMPREHENSIVE ANALYSIS OF THE RELATIONSHIP BETWEEN MODIFIABLE AND NON-MODIFIABLE RISK FACTORS AND THE DEVELOPMENT OF ARTERIAL HYPERTENSION**

### **Introduction**

Arterial hypertension is characterized by a persistent elevation of systolic blood pressure equal to or greater than 140mmHg and/or diastolic blood pressure equal to or greater than 90mmHg, as measured using Korotkov’s method on two or more consecutive visits with an interval of at least one week [1, 2]. With an estimated prevalence exceeding one billion people globally, hypertension has emerged as a leading cause of cardiovascular morbidity and mortality [3]. In Belarus, where the prevalence of hypertension is notably high, the burden of this condition contributes significantly to the country’s overall disease burden and healthcare costs [4]. Risk

factors for arterial hypertension can be classified into modifiable and non-modifiable categories [5]. This study seeks to investigate how modifiable risk factors, such as unhealthy diet, physical inactivity, obesity, smoking, alcohol consumption, and stress level (which can be altered through lifestyle changes and interventions) and non-modifiable risk factors, including age, gender, family history of hypertension and other medical conditions (diabetes, cardiovascular diseases, kidney diseases) (which cannot be changed) affects arterial hypertension in selected group of patients. Understanding the relationship between risk factors and arterial hypertension is essential for preventing, treating, and managing the condition effectively. It provides valuable insights to healthcare professionals and patients to enhance care outcomes through personalized strategies, improved treatment options, and early detection methods.

**Goal**

To compare and evaluate the relationship between modifiable and non-modifiable risk factors and the development of arterial hypertension.

**Material and methods of research**

A random selection of 30 patients, including both male and female individuals aged between 18 and 83 years, was conducted at the cardiology department of Gomel City Clinical Hospital No. 3 within the time frame of February 26th to March 11th, 2024. Patient visits, general examinations, questioning, questionnaire completion, and medical record reviews were carried out as part of the research process. The risk factors considered in the study included age, gender, family history of hypertension, and other medical conditions such as diabetes, cardiovascular diseases, and kidney diseases, as well as factors like diet, physical activity, BMI, smoking, alcohol consumption, and stress levels. Laboratory and instrumental analysis data were not included in the analysis. The collected data was then analyzed and compared to determine the relationship between these risk factors and the development of arterial hypertension. Additional statistics and data for the study were obtained from relevant resources, as referenced below.

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

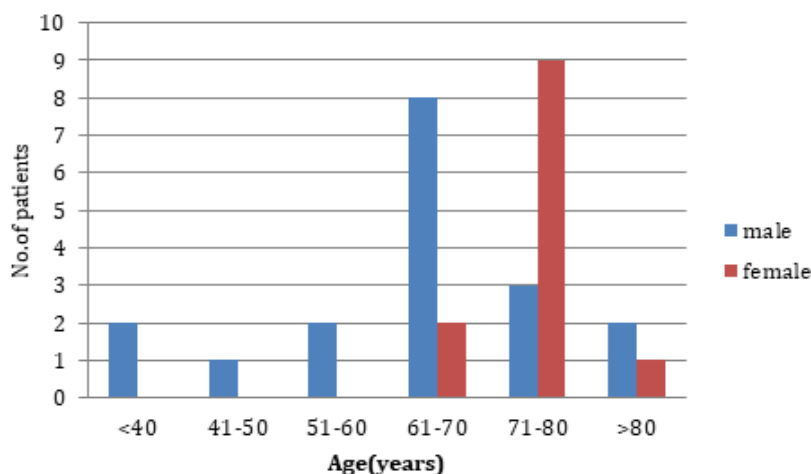
The age ranges of the patients in the study ranged from 18 to 83 years. The table1 provided below displays the distribution of patients according to their gender, along with the corresponding number of patients in each age range.

Table 1 – Age distribution of patients

Age(years)	Males	Females
<40	2	0
41–50	1	0
51–60	2	0
61–70	8	2
71–80	3	9
> 80	2	1

The data presented above is depicted in Figure 1.

In terms of family history of arterial hypertension, it was found that 19 patients had a positive family history of arterial hypertension, indicating a potential genetic predisposition. On the other hand, 5 patients reported no family history of arterial hypertension, while 6 patients were uncertain about the presence of this condition among their relatives. Genetic factors can influence blood pressure regulation, the structure and function of blood vessels, and the production of hormones involved in blood pressure control [6].



*Figure 1 – Graph representing no of patients against age groups*

When examining other medical conditions, the study revealed that 9 patients had diabetes, highlighting the coexistence of multiple health issues. Additionally, a significant number of patients, 28 in total, were diagnosed with cardiovascular diseases, underscoring the importance of managing these conditions effectively. Furthermore, 3 patients were identified as having kidney diseases, further emphasizing the complexity of their medical profiles.

Dietary habits and lifestyle choices were also investigated in the study. Nine patients reported adhering to a healthy diet characterized by reduced salt and fats, and an increased consumption of fruits and vegetables, reflecting a proactive approach towards their nutritional well-being. In terms of physical activity, only 5 patients engaged in daily exercise, while the majority, comprising 25 patients, did not incorporate regular physical activity into their routines.

The study also assessed body mass index (BMI) and found that 4 patients had a normal BMI, whereas the remaining patients were classified as having a high BMI, indicating a potential risk factor for various health issues. Moreover, smoking habits were prevalent among 9 patients, while the rest denied smoking. Alcohol consumption was reported by 11 patients, while 19 patients abstained from alcohol. Lastly, stress levels were reported by 12 patients, with 18 patients indicating no experience of stress.

### ***Conclusions***

Arterial hypertension is a multifactorial condition influenced by both non-modifiable risk factors such as age, gender, family history, and other medical conditions, as well as modifiable risk factors including unhealthy lifestyle choices and underlying health conditions. Aging, obesity, smoking, excessive alcohol consumption, poor diet, physical inactivity, and chronic stress all play significant roles in the development and progression of hypertension. Recommendations for preventing and managing arterial hypertension include maintaining a healthy weight through balanced nutrition and regular physical activity, avoiding tobacco use, moderating alcohol intake, managing stress through relaxation techniques, and seeking regular medical monitoring. Educating individuals about the importance of lifestyle modifications and providing support for behavior change are essential in hypertension prevention and management. One potential drawback to consider is that patients may not always provide accurate information about their lifestyle habits, which can affect the reliability of the data collected and the accuracy of risk assessments. Healthcare providers should be mindful of this limitation and utilize a combination of patient-reported information, clinical assessments, and objective measurements to make informed decisions regarding hypertension management. By addressing modifiable

risk factors through lifestyle changes and appropriate medical interventions, individuals can reduce their risk of developing arterial hypertension and improve overall cardiovascular health. Additionally, understanding the impact of non-modifiable risk factors can help healthcare providers personalize treatment plans and interventions for better outcomes in hypertension management.

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**Omana lekshmi Priya**

*Scientific Supervisor: T. A. Kurman*

*Educational Establishment*

*“Gomel State Medical University”*

*Gomel, Republic of Belarus*

### **THE EFFECTIVENESS OF MEDICAL EXAMINATIONS OF PATIENTS WITH ARTERIAL HYPERTENSION**

#### ***Introduction***

Hypertension is a common and potentially life-threatening chronic condition associated with increased risk of cardiovascular diseases, such as myocardial infarction and cerebral stroke. [1] At the same time, due to its asymptomatic nature, the afflicted population is largely unaware of being hypertensive [3].

Periodic health screening is a routine that most people living in developed economies have grown accustomed to. Regular medical examinations are often recommended to patients with arterial hypertension in order to monitor their blood pressure levels, assess cardiovascular risk factors and to improve treatment strategies [1].

However, the effectiveness of medical examinations in patients with arterial hypertension remains a crucial area of scientific inquiry, necessitating comprehensive research to assess their diagnostic value, prognostic implications and overall health impact of patients [1]. Due to general lack of resources, routine medical examinations are very rare in developing countries [2, 3].

For the case of hypertension, it is generally cheap to both screen and diagnose it and also treat it or at least control it using available medication [2]. Under diagnosis has been linked to a variety of possible causes like socio-economic indicators such as education, community characteristics and infrastructure, and even individual risk at time preferences [2, 3].

By shedding light on this topic, we strive to contribute to the optimisation of diagnostic practices and therapeutic interventions of patients with arterial hypertension, ultimately enhancing the quality of care provided in clinical settings.