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K. D. K. P. R. Perera, T. H. Hathagoda, T. C. Wijethunga

Scientific supervisor: Senior Lecturer T. V. Aleynikova

Educational Establishment
"Gomel State Medical University"
Gomel, Republic of Belarus

INFLUENCE OF GENDER ON THE MAIN PARAMETERS OF 24-HOUR BLOOD PRESSURE MONITORING IN PATIENTS WITH ARTERIAL HYPERTENSION

Introduction

Arterial hypertension (AH) remains one of the most important modifiable risk factors for cardiovascular morbidity and mortality worldwide. In the Republic of Belarus, AH represents a major public health concern. Epidemiological studies indicate that approximately 40–45% of the adult population is affected, which is considerably higher than the global average [1, 2]. Despite the availability of effective antihypertensive medications, many patients still fail to achieve recommended blood pressure (BP) targets. This highlights the need for more accurate diagnostic methods and improved monitoring strategies to ensure better control of AH [3].

Twenty-four-hour ambulatory blood pressure monitoring (ABPM) has become an essential tool in the modern diagnosis and management of AH. Unlike single BP measurements taken in a clinical setting, ABPM records BP continuously throughout the day and night, providing a more complete picture of a patient's BP profile [4]. This method allows clinicians to assess several important parameters, including average systolic and diastolic BP over 24 hours, as well as during daytime and nighttime periods, BP variability (expressed as standard deviation), and the BP load or time index, which reflects the percentage of readings above normal values [4].

Another clinically important aspect of ABPM is the evaluation of circadian BP rhythms. In healthy individuals, BP typically decreases by about 10–20% during sleep, a physiological phenomenon known as the "dipping" pattern. Based on the degree of nocturnal BP reduction, patients are classified into four circadian profiles: dippers (10–20% decline), non-dippers (0–10% decline), over-dippers (>20% decline), and night-pickers, in which nighttime BP exceeds daytime levels [4]. Abnormal circadian patterns, particularly the non-dipper profile, are associated with a higher risk of target-organ damage and cardiovascular complications [5].

Although these ABPM parameters are widely used in clinical practice, the potential influence of gender on these indicators remains an area of active research. Some studies suggest that women may demonstrate different BP regulation patterns compared with men, possibly due to hormonal influences and differences in vascular elasticity [5]. Understanding such gender-related variations may help improve risk assessment and support more individualized approaches to AH management.

Goal

The aim of this study is to evaluate and compare the main parameters of 24-hour ABPM in male and female patients with AH. The analysis focuses on key indicators, including average BP values, BP variability, BP load BP load or time index, and the degree of nocturnal BP decline. By comparing these parameters between genders, the study seeks to identify potential gender-related differences in ABPM profiles.

Material and methods of the research

This study was conducted using clinical data from 40 patients diagnosed with AH of the I–II degree. All participants underwent 24-hour ABPM as part of their routine clinical assessment at Gomel City Clinical Hospital № 3. The study group included 33 men (82.5%) and 7 women (17.5%). The mean age of the participants was 45.1±13.2 years, with an average age of 42.6±11.9 years among men and 57.1±15.4 years among women.

The dataset included detailed ABPM measurements. These measurements covered average systolic and diastolic BP values recorded over a 24-hour period, as well as during daytime and nighttime intervals. In addition, blood pressure variability indices, BP load (time index), and the degree of nocturnal BP decline were analyzed for each patient.

Statistical analysis of the collected data was performed using Microsoft Excel and Statistica 10.0. The results are presented as mean values with their standard deviations (M±SD), which allows for a clearer understanding of the distribution of the data within the study groups.

The results of the research and their discussion

The comparative results of average BP values and variability between male and female patients are presented below in table 1.

Table 1 – Average Blood Pressure Values and Variability According to Gender (M±SD)

Parameter	Men (n=33)	Women (n=7)	p-value
24h Systolic BP (mmHg)	149.2±18.4	155.9±22.2	0.20
Day Systolic BP (mmHg)	153.3±19.1	152.6±12.9	0.50
Night Systolic BP (mmHg)	141.1±20.8	145.8±14.4	0.30
Day Diastolic BP (mmHg)	91.6±19.1	92.4±6.4	0.46
Night Diastolic BP (mmHg)	83.7±12.7	87.2±8,3	>0,05
24h Systolic BP Variability (mmHg)	17.9±5.6	17.7±6.3	0.46

As shown in table 1, no statistically significant differences were found between male and female patients in any of the mean blood pressure parameters or in 24-hour systolic blood pressure variability ($p > 0.05$ for all comparisons). Although women had slightly higher 24-hour and nighttime systolic blood pressure values than men, these differences were not statistically significant. Overall, the results indicate that average blood pressure levels and their variability were generally similar in both genders within this study group.

The comparative results for blood pressure load (time index) and the degree of nocturnal blood pressure decline in male and female patients are presented in table 2.

Table 2 – Blood Pressure Load and Nocturnal Blood Pressure Decline by Gender (M±SD)

Parameter	Men (n=33)	Women (n=7)	p-value
24h Systolic BP Load (%)	68.2±25.4	77.5±17.5	0.18
The degree of Nocturnal systolic BP dipping (%)	8.0±7.7	3.2±6.2	0.07
The degree of Nocturnal diastolic BP dipping (%)	11.1±9.1	3.65±5.5	0.03

The data presented in table 2 indicate that women experienced a significantly smaller nocturnal decline in diastolic blood pressure than men (3.65±5.5 % vs. 11.1±9.1 %; $p=0.03$).

Conclusions

The degree of nocturnal BP decline is an essential parameter used to classify circadian blood pressure patterns. The results suggest that female patients are more likely to exhibit a reduced nocturnal “dipping” pattern, which may increase their susceptibility to hypertension-related complications.

Therefore, incorporating gender-specific analysis into routine ABPM interpretation could enhance cardiovascular risk assessment and support more individualized treatment approaches.

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M. K. F. Rashidha

Scientific supervisor: PhD, Associate Professor M. V. Masko

Educational Establishment
"Gomel State Medical University"
Gomel, Republic of Belarus

PARANEOPLASTIC DERMATOMYOSITIS ASSOCIATED WITH BREAST CANCER: A MULTISYSTEM CASE WITH NEUROMUSCULAR AND SYSTEMIC INVOLVEMENT

Introduction

Dermatomyositis (DM) is an idiopathic inflammatory myopathy characterized by proximal muscle weakness and pathognomonic cutaneous manifestations. In adults, 15–30% of cases are paraneoplastic, meaning they are triggered by an underlying malignancy. Breast cancer is one of the most frequent solid tumors associated with this syndrome. The pathogenesis involves immune cross-reactivity between tumor antigens and muscle or skin tissues, frequently mediated by anti-transcription intermediary factor 1-gamma (anti-TIF1-γ) autoantibodies, which serve as highly specific biomarkers for cancer-associated DM.

Goal

To present a comprehensive clinical analysis of a severe case of paraneoplastic dermatomyositis, highlighting the diagnostic challenges of multisystem involvement and the necessity of integrated oncologic and immunosuppressive management.

Material and methods of research

A retrospective clinical analysis was conducted on patient K., 52 years old, treated at the Vitebsk Regional Clinical Hospital. Data sources included electronic medical records, laboratory profiles (CK, CRP, ferritin and myositis-specific antibody panels), and functional diagnostics including Electroneuromyography (ENMG), CT imaging, and PCR viral testing.

The results of the research and their discussion

Patient K., 52 years old, was diagnosed with Stage III right breast cancer (T2N2aM0). Following a mastectomy and polychemotherapy, the patient developed progressive proximal muscle weakness (3/5), dysphagia, and classic poikiloderma.