



AGE ASPECTS OF THE FORMATION AND DYNAMICS OF DEVELOPMENT OF EXCESS BODY WEIGHT AND HYPERGLYCEMIA IN PREGNANT WOMEN (PROSPECTIVE EPIDEMIOLOGICAL MONITORING)

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Abstract

Arterial hypertension (AH) in pregnant women occupies a special place among the pressing issues of modern medicine. It is an integral part of at least two extremely acute medical and social problems today: hypertension in general and the reproductive health of the nation. The main problem of hypertension in pregnant women: the lack of a unified terminology, the use of different classification and criteria for hypertension, tactics of patient management. We tried, on the basis of evidence-based medicine, to present the classification of hypertension in pregnant women and the principles of drug therapy, including emergency care in hypertensive crisis.

Until now, information on hypertensive and autonomic crises during pregnancy, obtained from epidemiological studies, has been virtually nonexistent. The emergence of such data will not only standardize and refine approaches to the early diagnosis and treatment of hypertensive and autonomic crises during pregnancy but also significantly improve obstetric and therapeutic outcomes.

Therefore, determining the incidence of these emergency conditions in the pregnant population, identifying the main epidemiological and maternal risk factors, and urgently preventing their obstetric and therapeutic complications based on the study of "innovative population-based developments" are current, global, regional, and national priorities for ongoing scientific research. Such



scientific data is important not only for cardiologists, but also for neurologists, obstetricians, and other physicians working with this category of patients.

Keywords: Epidemiology, pregnancy, arterial hypertension, hypertensive and vegetative crises, pharmacotherapy.

Introduction

Hypertensive disorders in pregnant women are among the most common and significant cardiovascular diseases and syndromes. The significance of this problem is determined by the fact that pregnancy in women with hypertensive conditions is often accompanied by severe health problems and even death of the mother (up to 40% in some countries), high rates of childhood and perinatal morbidity and mortality, and a number of obstetric complications [2].

Hypertensive conditions in pregnant women is a concept encompassing various clinical and pathogenetic variants of hypertensive disorders [5].

In some cases, women have a history of chronic kidney disease before pregnancy, which is the etiological factor for increased blood pressure; in others, it is essential hypertension; in others, in normotensive women before pregnancy, the increase in blood pressure is caused by the pregnancy itself, the so-called gestational forms - gestational hypertension and preeclampsia [1].

Moreover, in the structure of the causes of arterial hypertension during pregnancy, the greatest role is played by the latter, which, according to MABrown and MLBuddle [4], constitute the predominant part of all hypertensive disorders in pregnant women: gestational hypertension - 43%, preeclampsia - 27%, essential hypertension - 19%, preeclampsia against the background of previous hypertension - 7%, secondary (symptomatic) hypertension - 4% [6].

The purpose of the study based on the results of a clinical and epidemiological study, to substantiate innovative strategic directions for the prevention of hypertensive and vegetative crises in pregnant women in the Fergana Valley of Uzbekistan.



Materials and methods

Object of study. During the period 2019–2021, 1,500 pregnant women from women's outpatient clinics at maternity hospitals in Andijan were examined.

Subjects of research there was venous blood and its serum for biochemical analysis.

Research methods. General clinical, epidemiological, instrumental (EchoCG, ECG, ultrasound examination of internal organs), biochemical (cholesterol, triglycerides, sugar) and statistical methods were used.

Results and discussion

Our study found that overweight (BMI) as a risk factor for GC is characterized, at the end of the 3-year prospective study (2021), by the following levels of detection frequency under the influence of age in pregnant women: in the group of pregnant women up to 20 years old - 30.88%, at 21-24 years old - 22.15%, at 25-29 years old - 17.02%, at 30-34 years old - 21.43%, at 35-39 years old - 17.24%, at 40-44 years old - 10.00% and at ≥ 45 years old - 0.0%. Depending on age, its prevalence frequency is determined with a difference of 3 times or more. High detection is noted in the age groups of those examined - up to 20 years and 21-24 years (Table 1 and Fig. 1).

Table No. 1 Prevalence and dynamics of factors contributing to excess body weight in pregnant women by age (results of 3-year epidemiological monitoring)

№	Age groups	Years of monitoring						RR	CI		χ^2
		N	BMI F, 2019 year		P	BMI F, 2021 year			Max	Min	
			n	%		n	%				
1	up to 20 years	68	30	44,12	<0,05	21	30,88	0,64	0,72	0,56	8,65
2	21-24 years	447	183	40,94	<0,05	99	22,15	0,53	0,61	0,45	126,27
3	25-29 years	329	113	34,35	<0,05	56	17,02	0,41	0,49	0,34	160,43
4	30-34 years	126	57	45,24	<0,05	27	21,43	0,58	0,66	0,50	29,68
5	35-39 years	58	29	50,00	<0,05	10	17,24	0,60	0,68	0,53	13,95
6	40-44 years	10	6	60,00	>0,05	1	10,00	0,67	0,74	0,59	2,4
7	≥45 years	0	0	0,00	0	0	0,00	0,00	0,00	0,00	0

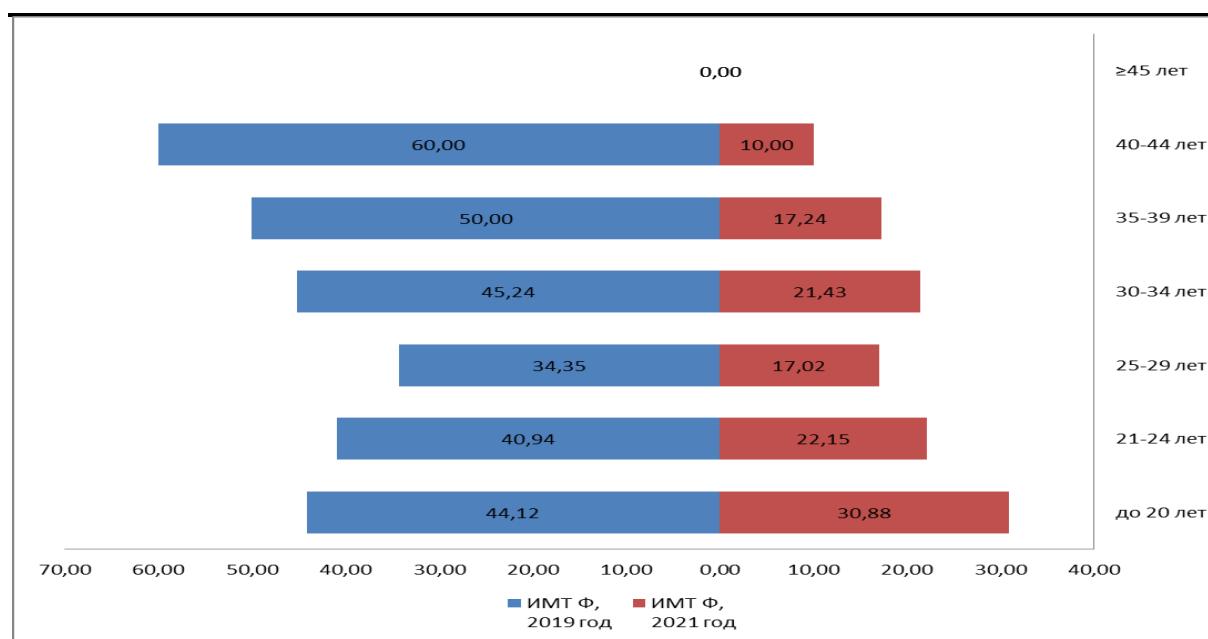


Fig. 1. The influence of age on the frequency of BMI in pregnant women.

Over the 3-year monitoring period, a statistically significant decrease in BMI was confirmed: in women under 20 years of age – 14.2% [RR = 0.64%; DU = 0.72 – 0.56; $\chi^2 = 8.65$; $P < 0.05$], at 21–24 years of age – a decrease of 17.8% [RR = 0.53%; DU = 0.61 – 0.45; $\chi^2 = 126.27$; $P < 0.05$], at 25–29 years of age – a decrease of 17.3% [RR = 0.41%; DU = 0.49 – 0.34; $\chi^2 = 160.43$; $P < 0.05$], at 30–34 years of age – a decrease of 23.8% [RR = 0.58%; DU = 0.66 – 0.50; $\chi^2 = 29.68$; $P < 0.05$], at 35–39 years – a decrease of 32.8% [RR = 0.60%; DU = 0.68 – 0.53; $\chi^2 = 13.95$; $P < 0.05$], at 40–44 years – a decrease of 50.0% [RR = 0.67%; DU = 0.74 – 0.59; $\chi^2 = 2.4$; $P < 0.05$] and at ≥ 45 years – 0.0% and 0.0% - without dynamic changes.

Table 2 and Fig. 2 present the identified data on the frequency of prevalence and dynamics of changes in hyperglycemia in pregnant women depending on age based on the results of 3-year epidemiological monitoring.

Table No. 2 Frequency and dynamics of hyperglycemic factors in pregnant women by age (results of 3-year epidemiological monitoring)

№	Age groups	Years of monitoring						RR	CI		χ^2
		N	HHC F, 2019 год		P	HHC F, 2021 год					
			n	%		n	%		Max	Min	
1	up to 20 years	68	11	16,18	P<0,05	10	14,71	0,19	0,25	0,13	64,99
2	21-24 years	447	37	8,28	P<0,05	38	8,50	0,09	0,14	0,05	61,92
3	25-29 years	329	46	13,98	P<0,05	18	5,47	0,15	0,21	0,09	43,00
4	30-34 years	126	25	19,84	P<0,05	9	7,14	0,21	0,28	0,15	13,66
5	35-39 years	58	18	31,03	P<0,05	5	8,62	0,34	0,42	0,27	44,48
6	40-44 years	10	3	30,00	P<0,05	2	20,00	0,38	0,45	0,30	5,05
7	≥45 years	0	0	0,00	P<0,05	0	0,00	0,00	0,00	0,00	0,00

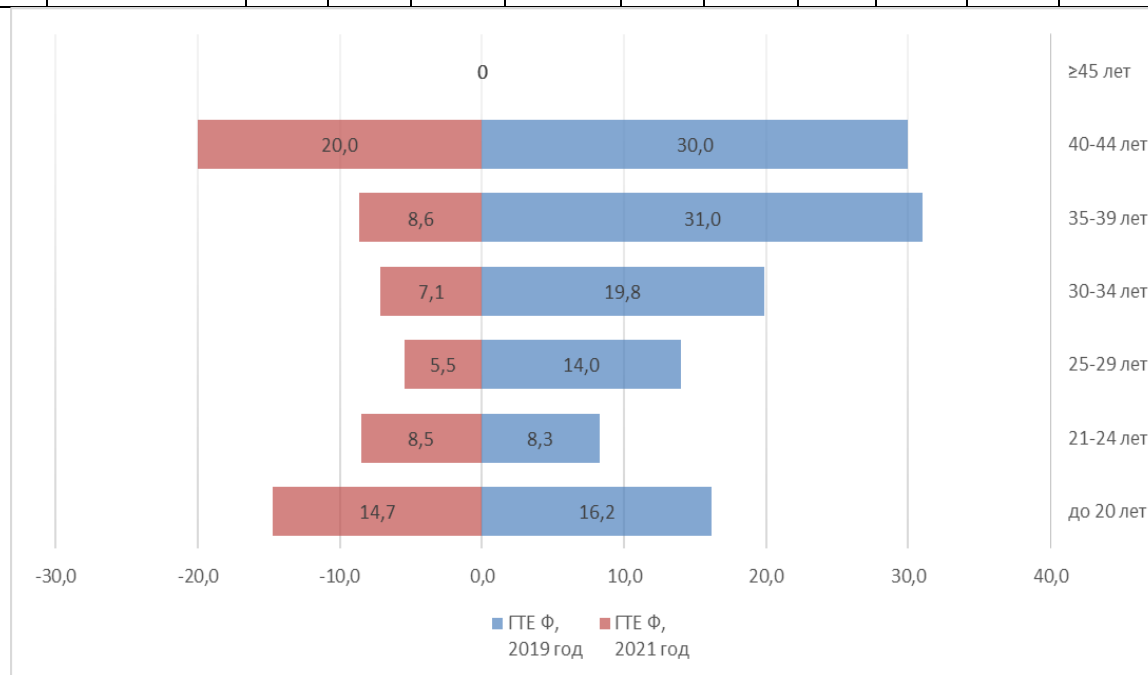


Fig. 2. The influence of age on the frequency of hyperglycemia in the population of pregnant women.

During the monitoring years, in 2019–2021, the prevalence rate and the dynamics of changes in pregnant women depending on age were, respectively: in the group of pregnant women under 20 years old – 16.18% and 14.71%, a decrease of 1.5%



[RR = 0.19%; DU = 0.25–0.13; Chi2 = 64.99; P< 0.05], 21–24 years old – 8.28% and 8.50%, an increase of 0.22% [RR = 0.09%; DU = 0.14–0.05; Chi2 = 61.92; P< 0.05]; at 25–29 years old – 13.98% and 5.47%, a decrease of 8.5% [RR = 0.15%; DU = 0.21 – 0.09; Chi2 = 43.00; P< 0.05]; at 30–34 years old – 19.84% and 7.14%, a decrease of 12.7% [RR = 0.21%; DU = 0.28 – 0.15; Chi2 = 13.66; P< 0.05]; at 35–39 years old – 31.03% and 8.62%, a decrease of 22.3% [RR = 31.03%; RR = 0.34; DU = 0.42 – 0.42 – 0.27; Chi2 = 44.48; P< 0.05], at 40–44 years old – 30.0% and 20.0%, with a decrease in the detection rate of 10.0% [RR = 0.38%; DU = 0.45–0.30; Chi2 = 5.05; P< 0.05] and at ≥ 45 years old – 0.0% and 0.0%.

The detection rate of hyperglycemia in the population of pregnant women varies by 4 times or more depending on age; high rates are observed in the group of pregnant women aged 40–44 years.

Conclusion

In the population of pregnant women, a higher frequency of the following risk factors for hypertensive and vegetative crises with characteristic dynamic changes is observed: stress 40.4% (with an increase of 0.5%), dyslipoproteinemia 13.2% (with an increase of 2.1%), excess body weight 33.0% (with an increase of 5.1%), hyperglycemia 21.3% (with an increase of 8.8%), physical inactivity 32.8% (with an increase of 6.1%) and low consumption of vegetables and fruits 38.0% (with a decrease of 0.1%). With age, the frequency of detection of risk factors increases by 3-4 times. The risk of an increase in risk factors begins from the first trimester of pregnancy, reaching the highest values in the third trimester. The presence of risk factors and comorbid pathologies in the population of pregnant women increases the likelihood of developing crises to 78.0%.

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