

## Features of hyperplastic processes of the endometrium in the presence of arterial hypertension

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### ABSTRACT

**Introduction:** The relevance of studying endometrial hyperplastic processes (EHP) is due to their prevalence, impact on quality of life and high risk of malignancy. The structure of EHP takes from 20 to 40% in the pathology of reproductive system in women.

**Objective:** To evaluate the clinical and morphological features of hyperplastic processes of the endometrium in the presence of arterial hypertension.

**Materials and Methods:** 96 women with endometrial hyperplastic processes were examined during the study. The first group consisted of 57 women with endometrial hyperplasia with arterial hypertension. The second group included 39 patients with endometrial hyperplasia without arterial hypertension All patients involved in the study, were investigated by ultrasound on the machine "MyLab50" ("Esaote", Italy) and videohysteroscopy ( «Karl Storz», Germany).

**Results:** In women of perimenopausal and postmenopausal age arterial hypertension was observed significantly more often compared to women of reproductive age ( $p < 0.05$ ). dysmenorrhea (40,4%;  $p < 0.05$ ), metrorrhagia (43,9%;  $p < 0.05$ ) and infertility (45,8 %;  $p < 0.05$ ) were significant more common for women with EHP and concomitant arterial hypertension. There are no significant differences in morphological forms between women with EHP with arterial hypertension and without hypertension. The presence of arterial hypertension had a significant effect on the risk of EHP recurrence (OR=6,0; CI=1,02-35,27;  $p < 0,05$ ).

Conclusions: Arterial hypertension was significantly more common in perimenopausal and postmenopausal women. Dysmenorrhea, metrorrhagia and infertility were the most common clinical manifestations of EHP in patients with arterial hypertension. The presence of arterial hypertension is a reliable predictor of the occurrence of EHP recurrences during the one year.

Key words: endometrial hyperplastic processes; endometrial hyperplasia; arterial hypertension;

## INTRODUCTION

The relevance of studying endometrial hyperplastic processes (EHP) is due to their prevalence, impact on quality of life and high risk of malignancy. The structure of EHP takes from 20 to 40% in the pathology of reproductive system in women [8]. More than nearly 55% of women endometrial cancer develops from the EHP [6]. Regardless of the large number of studies attributed to the occurrence of EHP, the pathogenesis, diagnostics, treatment and prevention of this pathology are richly nurtured until now [11].

Among somatic diseases, the most common comorbid pathology in women with EHP is arterial hypertension [4].

It is important to note that the triad: diabetes mellitus, hypertension and obesity has been noted by many researchers as a risk factor for the occurrence of hyperplastic and malignant endometrial processes [5].

In a study by G. Balbi et al. [Balbi G., Napolitano A., Seguino E., Scaravilli G., Gioia F. et al. The role of hypertension, body mass index, and serum leptin levels in patients with endometrial hyperplasia during premenopausal period. *Clin. Exp. obstet. Gynecol.* 2012; 39(3): 321-5.], published in the journal *Clinical and Experimental Obstetrics and Gynecology* in 2012, proved a statistically significant independent relationship between arterial hypertension and the risk of endometrial hyperplasia.

However, the research data of M. Epplein et al. [2], based on statistical processing of data from more than 440 cases of complex and atypical endometrial hyperplasia, did not reveal the

relationship between complex endometrial hyperplasia and risk factors such as arterial hypertension and diabetes mellitus.

This makes the actuality of search the features of recurrence the endometrial hyperplasia in combination with arterial hypertension.

### **OBJECTIVE**

To evaluate the clinical and morphological features of hyperplastic processes of the endometrium in the presence of arterial hypertension.

### **MATERIALS AND METHODS**

The study examined 96 women with endometrial hyperplasia who underwent treatment in the gynecology department "City Clinical Hospital №7» in Zaporizhzhya and "Zaporozhye Regional Clinical Oncology Center". Patients were divided into groups depending on the presence of arterial hypertension of endometrial hyperplasia. The first group consisted of 57 women with endometrial hyperplasia with arterial hypertension (mean age  $40,3 \pm 1,25$  years). The second group included 39 patients with endometrial hyperplasia without arterial hypertension (mean age  $38,7 \pm 1,32$  years). All groups were not significantly differ by age. All patients involved in the study, were investigated by ultrasound on the machine "MyLab50" ("Esaote", Italy) and videohysteroscopy ("Karl Storz", Germany). Arterial hypertension was considered a systolic blood pressure level higher than 140 mm Hg. and/or diastolic blood pressure higher than 90 mm Hg [10].

Statistical data processing was performed using the statistical software package "Statistica 6.0 for Windows" (StatSoft Inc., № AXXR712D833214FAN5). Differences between indicators considered reliable on condition  $p < 0.05$ . The indicators are presented as  $M \pm m$  (average mean  $\pm$  error of the mean) or  $Me$  (25-75 %) (median, 25 and 75 percentil) depending on the type of distribution. To assess the reliability of the differences between using double t-criterion of Student for independent samples. For groups of uneven distribution of expected non-parametric Mann-Whitney and Wilcoxon.

The prognostic significance of indicators regarding the occurrence of adverse cardiovascular events (end points) was assessed by the odds ratio (OR) with a confidence interval (CI) of 95%. Relative risk is the ratio of the frequency of occurrence of the result in persons who were exposed to the risk factor to the frequency of the occurrence of the result in persons who were not exposed to the risk factor. With  $OR > 1$ , the probability of developing an adverse outcome in the group affected by the risk factor is higher, and with  $OR < 1$ , it is lower than in people without risk factor exposure. For all types of analysis, differences were considered significant at  $p < 0.05$ .

## RESEARCH RESULTS

An analysis of the prevalence of arterial hypertension in women with hyperplastic processes was carried out depending on age. Age up to 45 years was considered reproductive. Women older than 45 years were categorized as perimenopausal and postmenopausal. The analysis showed that in women of perimenopausal and postmenopausal age with EHP arterial hypertension was observed significantly more often compared to women of reproductive age ( $p < 0.05$ ).

*Table 1*

Prevalence of hypertension in women with EHP in different age groups

Indicator, n	Reproductive age women (n=55)	Perimenopausal and postmenopausal women (n=41)	Credibility, p
The number of patients with hypertension, n/%	11/21%	16/39%	<b>p &lt; 0,05</b>

The features of clinical manifestations were analyzed. The prevalence of hyperpolymenorrhea, dysmenorrhea, metrorrhagia, algomenorrhea, hypooligomenorrhea, and infertility was analyzed in both groups. It was found that dysmenorrhea (40,4%;  $p < 0,05$ ), metrorrhagia (43,9%;  $p < 0,05$ ) and infertility (45,8 %;  $p < 0,05$ ) were significant more common for women with EHP and concomitant arterial hypertension.

*Table 2*

Peculiarities of clinical manifestations of EHP depending on the presence of arterial hypertension

Clinical manifestation	Women with arterial hypertension (n=57)	Women without arterial hypertension (n=39)	Credibility, p
Hyperpolymenorrhea, n/%	18/31,5%	10/25,6%	$p > 0,05$
Dysmenorrhea, n/%	23/40,4%	11/28,2%	<b>p &lt; 0,05</b>
Metrorrhagia, n/%	25/43,9%	12/30,7%	<b>p &lt; 0,05</b>
Algomenorrhea, n/%	16/28,1%	9/23,1%	$p > 0,05$
Hypooligomenorrhea, n/%	14/24,5%	8/20,5%	$p > 0,05$
Infertility, n/%	26/45,6%	12/30,7%	<b>p &lt; 0,05</b>

The morphological features of EHP, depending on the presence of arterial hypertension were analyzed. The prevalence of the following morphological forms was assessed, such as simple hyperplasia without atypia and complex hyperplasia without atypia. It was found that there are no significant differences in morphological forms between women with EHP with arterial hypertension and without hypertension.

*Table 3*

Morphological features of EHP depending on the presence of hypertension

Morphological form	Women with arterial hypertension (n=57)	Women without arterial hypertension (n=39)	Credibility, p
Simple hyperplasia without atypia, n/%	23/40,4%	17/43,6%	p >0,05
Complex hyperplasia without atypia, n/%	34/59,6%	22/56,4%	p >0,05

Reliable predictors of EHP recurrence were detected by calculating the odds ratio (OR). The prognostic significance of arterial hypertension as a predictor of recurrences of EHP during the year was evaluated.

It was proved that the presence of arterial hypertension had a significant effect on the risk of EHP recurrence (OR=6,0; CI=1,02-35,27; p<0,05). Therefore, arterial hypertension is a significant predictor of occurrence of EHP recurrences during one year.

## DISCUSSION OF RESULTS

Our study found that arterial hypertension is more common for patients of perimenopausal and postmenopausal age, than in reproductive period. In large cohort study of 290 thousands women was showed that the risk of endometrial cancer increased with increasing blood pressure levels, particularly systolic blood pressure levels [12].

The biological mechanism by which hypertension increases the risk of endometrial cancer is unclear and may be related to cellular senescence and apoptosis inhibition caused by chronic hypertension [12]. By these mechanisms we can explain the greater prevalence of dysmenorrhea, metrorrhagia and infertility in women with EHP and arterial hypertension, which we found in our research.

The prognostic value of various somatic disorders in patients with EHP is one of the most common goals of research in recent years [1, 3]. The modern investigations showed positive prognostic value of high blood pressure for endometrial cancer development [7]. However, there

are no reliable data on the prognostic value of arterial hypertension regarding the occurrence of relapses of endometrial hyperplasia. In our research has been proved that the presence of arterial hypertension is the reliable predictor of endometrial hyperplasia recurrence during 12 months.

### CONCLUSIONS

1. Arterial hypertension was significantly more common in perimenopausal and postmenopausal women.
2. Dysmenorrhea, metrorrhagia and infertility were the most common clinical manifestations of EHP in patients with arterial hypertension.
3. The presence of arterial hypertension is a reliable predictor (OR = 6,0; CI = 1,02-35,27;  $p < 0,05$ ) of the occurrence of EHP recurrences during the one year.

### LITERATURE

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#### **Conflict of interest is absent**

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