

# The analysis of the incidence of cardiovascular diseases in women with endometriosis hospitalized in the Silesian Center for Heart Diseases in Zabrze in 2006–2016

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## SUMMARY

**Introduction.** Endometriosis is one of the most common diagnostic and therapeutic challenges in women at child-bearing age. The aim of the work was to analyze the incidence of cardiovascular diseases in patients with endometriosis hospitalized in the Silesian Center for Heart Diseases in Zabrze, Poland.

**Material and methods.** The study involved 116 patients diagnosed and treated in the Silesian Center for Heart Diseases in Zabrze in 2006–2016, with endometriosis identified before hospitalization. The following were analyzed: age, BMI, parity, age of menarche or menopause, cardiac diseases, gynecological diseases, and history of pelvic surgery.

**Results.** In the group of the postmenopausal women, a statistically significant correlation was found between atherosclerosis and age of the last menstruation. Atherosclerosis was significantly more frequent in the patients with late menopause ( $p=0.042$ ). A history of pelvic surgery was not correlated with acute coronary syndrome, angina pectoris, venous thrombosis, and chronic ischemic heart disease in a statistically significant way.

**Conclusions.** Atherosclerosis is more common in patients with endometriosis and late menopause than in those with endometriosis and earlier menopause. Further investigations on the relationship of endometriosis with cardiovascular diseases may contribute to the emergence of new groups of patients at an increased cardiovascular risk.

**Key words:** endometriosis; menopause; cardiovascular diseases

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## INTRODUCTION

Endometriosis is one of the most common diagnostic and therapeutic challenges in women at child-bearing age. Its actual prevalence in the general population is difficult to estimate, mainly due to the lack of non-invasive diagnostic tests and a large percentage of asymptomatic cases diagnosed incidentally during surgery for other diseases [1]. Endometriosis mainly presents as pelvic pain and infertility. The latest reports associate endometriosis with an increased risk of cardiovascular diseases [2].

## AIM

The aim of the work was to analyze the incidence of cardiovascular diseases in patients with endometriosis hospitalized in the Silesian Center for Heart Diseases in Zabrze, Poland, in 2006–2016.

## MATERIAL AND METHODS

The study involved 116 patients diagnosed and treated in the Silesian Center for Heart Diseases in Zabrze in 2006–2016, with endometriosis identified before hospitalization. The following data were analyzed: age, BMI, parity, age of menarche or menopause, cardiac diseases, gynecological diseases, and history of pelvic surgery. The patients were divided into two age groups. The results were analyzed using basic parameters of descriptive statistics.

## RESULTS

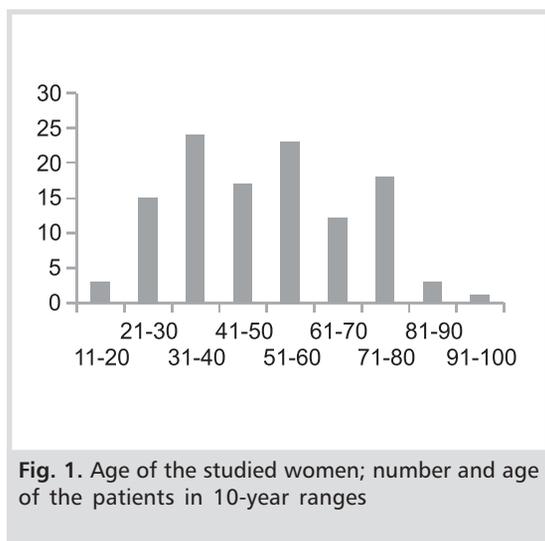
The mean age of the analyzed women at the first hospitalization for cardiovascular diseases was 50.3 years (min. 14, max. 100) (Fig. 1). The

mean BMI was 26.2 ( $\pm 4.8$ ). The mean age of menarche in the studied population was 14 ( $\pm 1.8$ ). The mean age of menopause in the postmenopausal patients was 45 (min. 20, max. 60). In the group of the postmenopausal women, a statistically significant correlation was found between atherosclerosis and age of the last menstruation. Atherosclerosis was significantly more frequent in the patients with late menopause ( $p=0.042$ ). The mean parity was: 1.71 ( $\pm 1.3$ ) for the number of pregnancies and 1.55 ( $\pm 1.2$ ) for the number of live births (Tab. 1), and was comparable with the average values in the population [8]. The most common cardiovascular disease in the studied population was chronic ischemic heart disease (70%,  $n=81$ ). The proportion of ischemic heart disease depending on age in 10-year ranges is presented in Fig. 2. Cerebral infarction and pulmonary embolism were the least common, account-

ing for 6% ( $n=7$ ) each (Fig. 3). History of pelvic surgery, either open or laparoscopic, was reported in over 24% of cases ( $n=28$ ). Patients with a history of oophorectomy constituted 14% of the group ( $n=16$ ). A history of pelvic surgery was not correlated with acute coronary syndrome, angina pectoris, venous thrombosis and chronic ischemic heart disease in a statistically significant way ( $p<0.05$ ) (Fig. 4). The incidence of venous thromboembolism was the same in both age groups (Fig. 3).

## DISCUSSION

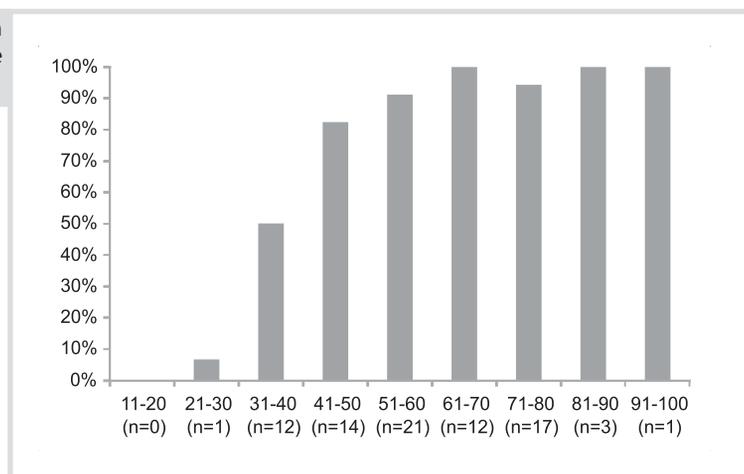
The relationship between late menopause and higher incidence of atherosclerosis in postmenopausal patients suggests reduced protective action of estrogen in patients with endometriosis compared to the general population [3,4]. Endometriosis, as a disease of proven inflamma-



**Tab. 1.** BMI, menarche and parity of the analyzed patients with division into two age groups

	≤50 years n=59	>50 years n=57
BMI, kg/m <sup>2</sup>		
<18,5, %	3	0
18,5-24,9, %	32	32
25-29,9, %	24	23
>29,9, %	7	19
Menarche		
≤11 years, %	5	4
12 do 13 years, %	17	19
≥14, %	25	24
Pregnancies >6 months		
0 pregnancies, %	25	7
1 pregnancy, %	17	11
2 pregnancies, %	24	26
≥3 pregnancies, %	2	19

**Fig. 2.** Proportion of women with chronic heart failure in 10-year age ranges

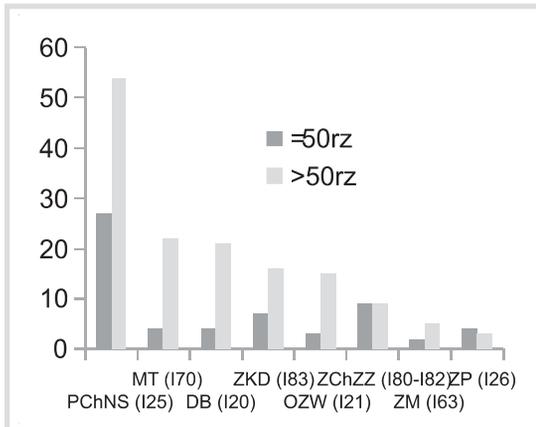


tory background [5], may affect the rate of atherosclerotic plaque progression and its related cardiovascular complications [6–8]. However, the literature is lacking reports about an

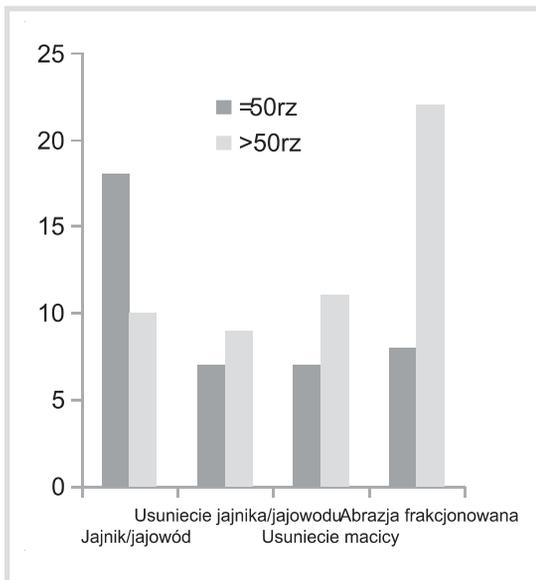
increased risk of cardiovascular disease in women with menstrual cycles persisting for a long time and with endometriosis. The latest reports about the relationship of endometriosis and pelvic surgery with an increased risk of acute coronary syndrome in women [2] have not been directly supported in this study.

## CONCLUSIONS

Atherosclerosis is more common in patients with endometriosis and late menopause than in those with endometriosis and earlier menopause. Further investigations on the relationship of endometriosis with cardiovascular diseases may contribute to the emergence of new groups of patients at an increased cardiovascular risk. A relationship between a history of pelvic surgery and an increased cardiovascular risk in women with endometriosis requires further investigation.



**Fig. 3.** Number of patients in the two groups (≤50 years, >50 years) with: chronic ischemic heart disease (n=81); atherosclerosis (n=26); angina pectoris (n=25); varicose veins (n=23); acute coronary syndrome (n=18); venous thromboembolism (n=18); cerebral infarction (n=7); pulmonary embolism (n=7). [MT – AS, PChNS – ChIHD, ZKD – VVs, DB – AP, ZChZZ – VTE, OZW – ACS, ZM – CI, ZP – PE]



**Fig. 4.** Number of patients in the two groups (≤50 years, >50 years) with a history of any surgery/procedure: any diagnostic or therapeutic procedure, via laparoscopy or laparotomy, on the ovary, fallopian tube or uterus (n=28); oophorectomy or salpingectomy (n=16); any hysterectomy (n=18); uterine fractionated abrasion (n=30). [Usunięcie jajnika/jajowodu – Oophorectomy/salpingectomy, Jajnik/jajowód – Ovary/fallopian tube, Usunięcie macicy – Hysterectomy, Abrazja frakcjonowana – Fractionated abrasion]

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