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## **Women's knowledge about pregnancy complicated by breast cancer and the attitude towards the implementation of anti-cancer therapy**

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### **Abstract**

**Introduction and purpose:** Breast cancer is the most commonly diagnosed cancer during pregnancy. Women can treat it, but pregnancy has a significant impact on the types

and duration of using treatment. Purpose is to present the opinions of women about pregnancy complicated by breast cancer.

**Material and methods:** 206 women participated in the study. We used a survey on the Internet. The average age of the respondents was 31.2. To establish whether an observed frequency distribution differs from a theoretical distribution the  $\chi^2$  test of goodness-of-fit was used, to estimate relation we use the  $\chi^2$  test of independence.

**Results:** There were statistically significant differences between the number of women who believe that breast cancer is benign vs. malignant. Most often indicated as a safe method of diagnosis in pregnant women were: biopsy, mammography with lead shield, ultrasound, there was also a relationship between the place of residence and the choice of biopsy and ultrasound. A significant difference was noted between the number of women declaring an attitude forward delay vs starting treatment in pregnancy. There was a significant relationship between the pregnancy experience and the declared decision on the time of beginning of the therapy.

**Conclusions:** The results suggest that women are aware of the malignancy of breast cancer. Many of them incorrectly differentiate the effects of this cancer in pregnant women and not pregnant. Biopsy, mammography with lead shield, ultrasound are perceived as the safest methods of diagnosis. Significantly more respondents claim that they would postpone the therapy until the end of pregnancy. Women who have never been pregnant more often declare that they would decide to postpone treatment.

**Key words:** breast cancer; pregnancy; attitude; knowledge.

## Introduction

Malignant neoplasms are the predominant cause of death in women of reproductive age [1]. The most common is breast cancer, which accounts for over 50% of malignancies diagnosed during pregnancy [2]. This condition affects one in 3,000 pregnant women. In addition, more and more cases are recorded due to the late age of future mothers [3].

Treatment of breast cancer also depends on many factors, like the trimester of pregnancy a woman is in [4]. Therapy is a complex process involving several methods and stages [5]. The safest time to start treatment is in the third trimester [3]. Convalescence consists of,

among others from surgery, radiotherapy and chemotherapy. However, the least threatening to the child's life is mastectomy due to the lack of negative effects of anesthetics on its development [6]. Radiotherapy, however, is not usually used because of the high dose of ionizing radiation that can cause gene mutations and fetal malformations [7]. Alternatively, it can be used as a complementary method of treatment [8]. If you use chemotherapy, you also have a risk of developing a disability. That is why it is so important to choose the right medicine, dose and duration of treatment [9].

Available sources suggest that most pregnant women undergo systemic therapies. In contrast, as much as 40% of patients undergo surgery with complementary chemotherapy. Systemic treatment can be started from the second trimester, and surgery itself from the first trimester [2].

The goal of treating a pregnant woman with breast cancer is the same as for treating a non-pregnant woman: cure the cancer as soon as possible or control it and prevent it from spreading if it cannot be cured. But additional care to protect a growing fetus can make treatment more complicated. The following study was conducted to find out the knowledge of women of different ages about pregnancies complicated by breast cancer and the opinion on the implementation of cancer therapy during these pregnancies.

### **Purpose**

To present the opinions of women about pregnancy complicated by breast cancer.

### **Material and Methods**

There were 206 women who took part in the study. The diagnostic survey method was used based on the author's own survey. The survey was conducted via the Internet. The average age of the respondents was 31.2. Below is the percentage distribution of education and place of residence of the respondents.

Education	N	%
Basic and professional	16	7,76
Lower secondary	33	16,02
Average	71	34,95
Higher	85	41,27

Table 1. Distribution of respondents' education.

Place of residence	N	%
Village	70	33,98
10-30 thousand inhabitants people	19	9,22
locality above 30-100 thous. people	60	29,13
town 100-200 thousand people	22	10,68
town over 200,000 people	35	16,99

Table 2. Distribution of respondents' place of residence.

Respondents' answers were described using numbers and percentage distribution. The chi2 compliance test was used to assess the significance of differences between the groups. In order to assess the relationship, the chi2 independence test was used. The level of statistical significance was 0.05.

## Results

Statistically significant differences were found between the number of women who believe that breast cancer is a benign tumor and the number of women who claim that the cancer is malignant ( $\chi^2 = 95$ ,  $df = 1$ ). The vast majority of respondents indicated the malicious response as correct (84%).

malicious (n)	%	mild (n)	%
172	83,5	34	16,5

Table 3. Breast cancer as a malignant and benign tumor in the opinion of the examined women.

There was a significant difference between the number of respondents aptly and incorrectly differentiating the symptoms of this cancer in pregnant women compared to non-pregnant women ( $\chi^2 = 65.2$ ,  $df = 1$ ). Only 21.8% of respondents make a correct assessment.

	Correct symptom assessment (n)	%	Incorrect symptom assessment (n)	%
Cancer during pregnancy	19	28,8	47	71,2
Cancer outside pregnancy	26	18,6	114	81,4

Table 4. Assessment of the effects of breast cancer in pregnant women.

Ultrasound (59.2%) was the most frequently chosen among all possible answers regarding safe methods of diagnosing breast cancer in pregnant women. The respondents also chose a lead shielded mammography (38.8%) and a biopsy (32.5%). However, biopsy as an indispensable element of diagnostics is more preferred because it is the only method that allows confirmation of cancer.

A significant difference was found between the number of women declaring a potential shift vs. starting cancer therapy during pregnancy ( $\chi^2 = 126.8$ ,  $df = 1$ ). More women surveyed said they would postpone therapy until the end of pregnancy.

commencement	%	Shift	%
84	40,78	122	59,22

Table 5. Declaration on the implementation of cancer therapy in pregnancy.

In addition, there is a statistically significant relationship between the experience of pregnancy and the declared decision regarding the implementation of cancer therapy ( $\chi^2 = 8.8$ ,  $df = 1$ ). Of all the respondents who declare that they would decide to postpone treatment after pregnancy in the event of breast cancer during this period, as many as 76% have never been pregnant.

	start of treatment	%	shift of treatment	%	Total	%
I was / am	37	17,96	29	14,08	66	32,04
No	45	21,84	95	46,12	140	67,96

Table 6. Pregnancy experience and attitude towards treatment of breast cancer in pregnancy.

However, there was no relationship between the age range at which women usually become pregnant and the declared decision on the treatment of breast cancer in pregnancy ( $\chi^2 = 0.01$ ,  $df = 1$ ). Both in the age range: up to 18 years or 39 years and above, as well as in the range of 19-38 years, a similar number of respondents claimed that they would have decided to postpone vs starting therapy during pregnancy.

	Start of treatment	%	Shift of treatment	%
up to 18 years or 39 years and older	41	19,90	65	31,56
19-38 years	41	19,90	59	28,64

Table 7. Age and attitude towards treatment of breast cancer in pregnancy.

There was also a significant relationship between the place of residence and the choice of safe methods for diagnosing pregnant breast cancer. Women from rural areas and towns that had up to 30,000 people less mostly indicated ultrasound ( $\chi^2 = 41.5$ ,  $df = 1$ ) and biopsies ( $\chi^2 = 7.87$ ,  $df = 1$ ) as safe methods compared to women from locality above 30,000 people and metropolis.

	Yes	%	No	%	Total	%
Village and town up to 30,000 people	20	9,7	69	33,5	89	43,2
A town over 30,000 people and metropolises	48	23,3	69	33,5	117	56,8
Total	68	33	138	67	206	100

Table 8. Place of residence and knowledge about biopsy as a safe method of diagnosing pregnant breast cancer.

	Yes	%	No	%	Total	%
Village and town up to 30,000 people	22	10,68	67	32,51	89	43,2
A town over 30,000 people and metropolises	82	39,81	35	17	117	56,8
Total	104	50,49	102	49,51	206	100

Table 9. Place of residence and knowledge about ultrasound as a safe method of

diagnosing pregnant breast cancer.

## Discussion

A review of the Pubmed and Polish Scientific Journals Database databases was carried out in search of articles in Polish and English regarding women's knowledge of pregnancy complicated by breast cancer and attitudes towards the implementation of cancer therapy. Unfortunately, there was a significant lack of scientific work on breast cancer awareness in pregnancy. However, texts have been found that refer to the information about breast cancer in the general population of women, but few of them were carried out in Poland.

According to our analysis, more than 80% of respondents ( $\chi^2 = 95$ ,  $df = 1$ ) speak for the malignant nature of breast cancer. Leszczyńska K. also confirms this analysis in her work. She also mentions the widespread occurrence of this cancer among women. In Poland, its detection rate has doubled in the last 30 years. Therefore, it is extremely important to make an early diagnosis, which allows you to implement effective therapy. This action is possible thanks to raising the mentality of women about the disease [10].

The presented study showed that not only a biopsy and ultrasound, but also mammography with a lead sheath is the most frequently indicated safe method of diagnosis in pregnant women. In addition, it is also worth emphasizing the fact that women are not aware of the overlap of pregnancy and breast cancer symptoms ( $\chi^2 = 65.2$ ,  $df = 1$ ). More than 45% of women are not aware of the partial compliance of the symptoms. According to Brzozowska A. the main reasons for delaying the diagnosis is a lack of knowledge about the overlap of these symptoms and late visits to the doctor. The available source reports that the patients underestimate the symptoms of the disease and have a fear of being diagnosed with the disease. The period of informing the doctor about ailments reaches up to 218 weeks [11].

The results of our research indicate that 90.8% of those surveyed indicate a lump or thickening as the main symptom of breast cancer that feels different from the rest of the breast. [11].

Interpretation of data indicates insufficient knowledge about breast cancer in women of reproductive age. The same conclusion is made by the authors of the articles available on the subject in Polish. According to the Paździor A. study, "The knowledge of breast cancer



prevention among women is not entirely satisfactory and requires supplementation" [12]. According to Najdyhor E., the result of insufficient awareness is the downplaying of preventive examinations such as mammography. "Only half of the women surveyed have ever had mammography, and only one in three women surveyed used to have an invitation to perform the test" [13]. In addition, the data we obtained suggest that women from rural areas and the city up to 30 thousand. people less often indicate ultrasound ( $\chi^2 = 41.5$ ,  $df = 1$ ) and biopsies ( $\chi^2 = 7.87$ ,  $df = 1$ ) as safe methods in comparison with women from locality above 30 thousand. people and metropolis. This confirms the need to implement preventive programs, including training, etc. in the field of prevention and treatment of this disease [14].

An attitude test on the implementation of therapy directly in pregnant women with breast cancer can be difficult due to the ethical aspect. Our study was prospective and women were in favor of postponing treatment until after termination of pregnancy ( $\chi^2 = 126.8$ ,  $df = 1$ ). The very moment of making a diagnosis raises a lot of fears for the future mother about her child's life. The decision to start treatment is very complicated. It should be noted that the type of therapy depends on the stage of the disease and the trimester of pregnancy. Medical treatment in the third trimester is the least burdensome. Diagnostic and treatment procedures take into account the well-being of mother and child [15]. However, the study did not thoroughly analyze women's knowledge of methods of treating pregnant breast cancer. Probably the experience of cancer during pregnancy increases the scope of knowledge about possible treatment methods, their advantages and limitations, which also affects the decisions taken by patients. In addition to these choices are also driven by strong emotions. Women are shocked and often want to face cancer as soon as possible. Based on the example of Maria Crider, who was diagnosed with breast cancer at 11 weeks of pregnancy, cancer detection is a "real emotional roller coaster" [16]. Mobilization is double, because the fight begins not only for your life, but also for the future of the child. The circumstances in which pregnant women find themselves constitute "a confrontation with the diagnosis of a life-threatening disease in a situation where the beginning of the future life is celebrated" [17].

For women, the well-being of their children is the most important thing. This was emphasized in an interview by a doctor-practitioner, Dr. Jerzy Giermek from the Breast Cancer Clinic of the Warsaw Oncology Center: "I get those who want to fight at all costs. Only a few patients with whom I talked, she decided to terminate the pregnancy. But we know that such women are the majority. When a person hears that he has cancer, he has a sentence

in our consciousness. And the reactions are different ”[18].

Many future mothers fight to the end for their child and are able to withstand even the most difficult treatment. This is confirmed by the example of Maria Crider, who had mastectomy, caesarean section, surgical excision of the fallopian tube, 25 radiotherapy and 16 chemotherapy [16]. Thanks to the selection of appropriate treatment and cooperation of the whole team, a healthy child was born.

An important element of therapy is emotional and informational support from the staff. It is necessary to help the entire interdisciplinary team in reconciling with the diagnosis and the patient's appropriate attitude to fight the disease. Consultations with a psychologist or psycho-oncologist are recommended. Knowledge about treatment options is also important. Expanding knowledge about your illness allows the patient to feel more confident in difficult struggles with cancer. A stable and trust-based relationship with a doctor, nurse or other team member helps the patient in making decisions [17].

### **Conclusion**

The results obtained suggest that women are aware of the malignancy of breast cancer. Women lack knowledge about the effects of this cancer on pregnant and non-pregnant women. It is worth expanding the awareness of women from rural areas and the city to 30 thousand. people on biopsy and ultrasound as safe methods of diagnosis in pregnancy. Significantly more study participants say that they would postpone therapy until the end of pregnancy. Women who have never been pregnant more often declare that they would decide to postpone treatment. The age range at which women most often give birth is probably not a factor that significantly differentiates the above attitude. In further research, it is worth analyzing the issue of the relationship between women's knowledge of the possibilities, methods of treatment of breast cancer in pregnancy and the attitude towards the time of therapy implementation.

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