The Impact of COVID-19 Pandemic on Gynecological and Breast Cancer Detection Rate: A Tertiary Center Perspective.

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Abstract

Purpose: The aim of the present study was to assess the impact of postponed screening examinations and lockdown measures on gynecological and breast cancer detection rate throughout the year 2020 in a gynecological oncological center in Austria.

Methods: Data of 889 patients with either newly diagnosed gynecological or breast cancer between January 2019 and December 2020 were collected. Clinical parameters including symptoms, performance status, comorbidities and referral status were compared in patients, who were newly diagnosed with cancer in the period of the first lockdown from March 2020 – April 2020 and the second lockdown from November 2020 – December 2020 and compared to the same period in 2019.

Results: Our results showed a strong decline in newly diagnosed cancers during the lockdown periods: -45% in gynecological cancer and -52% in breast cancer compared to the same period in 2019. Compared to the analogue period of 2019, breast cancer patients reported significantly more tumor-associated symptoms (55% versus 31%, $p=0.013$) during and in between (48% versus 32%, $p=0.022$) the lockdowns. During the lockdown periods breast cancer patients were diagnosed with a significantly higher tumor-stage (T2-T4; $p=0.047$).

Conclusion: Both lockdowns led to a strong decrease in newly diagnosed gynecological and breast cancers. Treatment delays in potentially curable disease could lead to inferior clinical outcomes, with the risk of missing the optimal treatment window. As the COVID-19 pandemic will be a challenge for some time to come, new strategies in patient care are needed to optimize cancer screening and management during the pandemic.

Introduction

The ongoing coronavirus disease 2019 (COVID-19) pandemic remains a challenge for most countries around the world, affecting not only their healthcare system, but also economic development, socio-political attitude, educational and cultural sectors. As of January 26th, 2021, more than 100 million infections were reported worldwide with a death toll of more than 2 million [1]. In Austria, more than 402 000 cases and 7416 deaths were confirmed by January 26th, 2020, leading to a death rate of 1.8% [2].

The first two patients in Innsbruck, Austria, were diagnosed with (COVID-19) on February 25th, 2020. Within few weeks, the number of cases increased throughout the country, leading the government to the implementation of a nationwide hard lockdown on March 16th, 2020, closing all non-essential businesses and switching to distance learning in schools and universities. During the first wave of the COVID-19 pandemic, Austria's governmental measures prevented an overload of the healthcare system, as the maximum intensive care bed occupancy only reached 26% [2]. By the middle of April, the stay-at-home orders started to be loosened, enabling most of public life by the beginning of May. However, regained freedom of travel and growing get-together trend led to a new escalation of newly diagnosed COVID-19

cases, so that a nationwide curfew was announced on September 21st, followed by the second lockdown enforced from November 3rd .

In Austria, general practitioners and specialists play a central role in preventive and primary healthcare and they refer patients to hospitals, if necessary. Gynecological screening examinations and routine checkups in Austria include annual PAP smear testing and biennial mammography. During the first lockdown, these screening examinations and routine checkups were restricted to prevent the spread of the virus and to increase the hospitals' bed capacity across the country [3]. These restrictions led to a strong decline in newly diagnosed gynaecological and breast cancers in Austria, as already reported (-24% in March 2020 vs. March 2019, - 49% in April 2020 vs. April 2019, - 49% in May 2020 vs. May 2019) [3]. Such a dramatic decrease in cancer diagnoses reflects the failures of pandemic management and therefore underlines the pivotal role of the gynecological screening examinations and routine checkups. After the first lockdown significant efforts were made to relaunch health prevention and to promote the importance of screening programs during the pandemic. Furthermore, the safety of patients in hospitals was improved, as mandatory COVID-19 testing was implemented for every admitted patient as well as weekly screening of health-care workers.

The aim of this study was to assess the impact of the COVID-19 pandemic and its management throughout the year 2020 on gynecological and breast cancer detection rate from the perspective of a tertiary referral center in Innsbruck (federal state of Tyrol, Austria).

Materials And Methods

Patients

All patients diagnosed with gynecological or breast cancer at the Department of Obstetrics and Gynecology, Medical University of Innsbruck in the period from January 2019 to December 2020, were included in the present study. Clinical parameters including tumor specific symptoms, performance status, comorbidities, tumor type, tumor stage, referral status and COVID-19 infection status were evaluated. Referral status was defined as followed: referral by a specialist with or without symptoms, or self-determined presentation at emergency or gynecological department with or without tumor specific symptoms. Predefined subgroup analyses were performed in patients, who were newly diagnosed with cancer during the lockdown periods (the first lockdown from March 16th, 2020 – April 30st, 2020 and the second lockdown from November 3rd, 2020 – December 31st, 2020) and compared to the same period in 2019 (March 16th, 2019 – April 30st, 2019 and November 3rd, 2019 – December 31st, 2019), respectively. The following symptoms have been regarded as tumor-associated: abdominal swelling/pain, abnormal vaginal bleeding (postmenopausal bleeding, menorrhagia, metrorrhagia, spotting) and palpable mass of the breast.

Until June 14th, 2020 no routine COVID-19 screening was performed due to generally low COVID-19 prevalence in Austria. However, symptoms screening by questionnaires, travel history and temperature

measurements was conducted for all patients admitted to the hospitals. Routine preoperative COVID-19 screening was implemented by June 14th .

Statistical Analyses

Descriptive statistics, such as median, mean, frequencies and percentages were used to describe the data. Clinical characteristics were analyzed using Chi-square and Mann-Whitney U tests. For all statistical analyses SPSS software version 26.0 was used. Two-sided p values below 0.05 were regarded as significant. Bonferroni correction was applied for correction for multiple comparisons.

Ethical approval

The ethics committee of the Medical University of Innsbruck, Austria approved the present study (IRB-Number 1163/2020).

Results

In this study, 889 patients (495 and 394 in 2019 and 2020, respectively) with either newly diagnosed breast ($n = 596$) or gynecological ($n = 293$) cancer were included.

During the lockdowns screening examinations and hospital bed capacity were reduced. This led to a strong decline of newly diagnosed cancers during the first and second lockdown: -45% in gynecological cancer and - 52% in newly diagnosed breast cancer compared to the same period in 2019.

Patients' characteristics, tumor type and stage as well as clinical parameters are presented for gynecological tumors in Table 1 and for breast cancer in Table 2.

Analysis of 2019 and 2020 revealed a decrease of newly diagnosed gynecological and breast cancers in particular during the first lockdown (Fig. 1). According to the above, the number of newly diagnosed gynecological cancer cases was significantly lower in 2020 compared to 2019 during the first lockdown period as well as between the two lockdowns (Fig. 2). An inverse correlation was found between the number of positively tested COVID-19 patients in the federal state of Tyrol (Austria) and newly diagnosed breast cancer cases at our department during 2020 (Fig. 3).

Sub-analysis of breast cancer patients:

Compared to the analogue period of 2019, breast cancer patients reported significantly more tumor-associated symptoms (55% versus 31%, $p = 0.013$) during and in between (48% versus 32%, $p = 0.022$) the lockdowns. In contrast to 2019, patients were less likely to be referred by a specialist, whereas an increase of self-referring patients, due to symptoms, was noted. During the lockdown periods patients were diagnosed with a significantly higher tumor-stage (T2-T4; $p = 0.047$). Despite being insignificant, fewer patients underwent immediate surgery (-11%), whereas an increase of neoadjuvant chemotherapy (+ 10%) was indicated in this sub-cohort.

Sub-analysis of gynecological cancer patients:

As seen in the breast cancer subgroup, an increase of patients presenting themselves with tumor associated symptoms (+ 20%, $p = 0.384$) was noted during the lockdown, despite being insignificant. Between the two lockdown periods a significant leap (+ 25%) of self-referring symptomatic patients was observed ($p < 0.001$).

Overall, the tumor stage did not differ significantly between the two analyzed years. However, a drop in newly diagnosed cervical cancer (18% versus 6%) was observed. During the lockdown periods a trend towards neoadjuvant chemotherapy (+ 8%; $p = 0.677$), as well as a non-significant decrease in primary surgical treatment (-12%; $p = 0.559$) was reported.

A significant increase of patients without leading comorbidities was seen in the gynecological cancer cohort during the lockdowns ($p = 0.010$), whereas this change remained insignificant in the breast cancer subgroup ($p = 0.102$).

COVID-19 screening:

Routine preoperative COVID-19 screening was performed in 296 patients leading to the detection of 3 positive COVID-19 asymptomatic patients (1%). Of those, one was diagnosed with breast cancer and two with gynecological cancer (endometrial and ovarian cancer). For two of them surgery had to be postponed for 3 weeks until they reached a negative test result. The third patient (ovarian cancer) was admitted to our department and undergone paracentesis but denied further treatment irrespective of her COVID-19 infection.

Discussion

In Austria, from the first COVID-19 outbreak in February 2020 until now, the Austrian healthcare system had to face considerable difficulties. During the first lockdown from March 16th to April 30st 2020, social distancing measures were applied not only for the private and commercial sector, but also for the medical services. Routine checkups and gynecological screening examinations such as the annual PAP smear and the biennial mammography have been mostly postponed. In this period, a strong decline in newly diagnosed gynaecological and breast cancers was observed in Austria, as previously reported by our study group [3]. The aim of the present work was to follow up this phenomenon throughout the year 2020 from a tertiary centre's perspective.

In the current study, we found a strong decline of newly diagnosed gynecological and breast cancer cases in 2020 as compared to 2019. This decrease was mainly due to a lower cancer detection rate at our department during the two lockdown periods (March 16th, 2020 – April 30st, 2020 and November 3rd, 2020 – December 31st, 2020) as compared to the same period in 2019.

In order to guarantee adequate patient care, considerable efforts have been made during the first lockdown to facilitate gynecological screening examinations with a minimized risk of a hospital acquired infection: COVID-19 symptom screening by questionnaires, temperature measurements, mandatory facemasks and optimized patients waiting time. By 14th of June, these actions were expanded by COVID-19 screening of

every admitted patient. Therefore, although rising infection rates were experienced during fall and winter, screening examinations and outpatient care were guaranteed. However, as our study shows, even with optimized pandemic management, a strong decline in newly diagnosed cancers was still observed throughout the year 2020 as compared to 2019.

In the group of breast cancer, a strong decline of cancer detection rate was observed during both lockdown periods. In between the lockdowns, cases of newly diagnosed breast cancer increased and even reached a higher number as compared to 2019. We suppose that patients who missed screening examinations during the first lockdown, tended to catch up their appointment as soon as the pandemic situation looked stabilized. Significantly more patients with tumor specific symptoms presented directly at our department or were referred by their gynecologist due to these symptoms. This observation indicates that tumor specific symptoms forced patients to consult a doctor, while non-symptomatic cancer cases in patients who missed the routine mammography remained undetected. The observed tumor stage shift towards higher stage at diagnosis might also be explained by postponed mammography during the first lockdown. However, further studies on larger population are needed to prove this assumption. Moreover, there was an increasing trend towards neoadjuvant chemotherapy and a reduction in primary surgical cases during the lockdown periods. This might be explained by advanced tumor stage and the attempt to increase the overall hospitals' bed capacity.

A decrease of 45% of newly diagnosed gynecological cancers was observed as compared to 2019. In particular, non-symptomatic tumors such as cervical cancer was underdetected in 2020, as annual PAP test was postponed during the first lockdown period. In the same time, tumor patients with tumor-specific symptoms such as postmenopausal bleeding or abdominal pain, less frequently consulted their specialist and presented themselves directly at our department.

Our observations are in line with several studies on the impact of the COVID-19 pandemic on cancer detection rate and management of oncological diseases. In accordance with our results, a strong decline in newly diagnosed cancers was observed in breast, colorectal, lung and prostate cancer in the USA and across Europe [4, 5, 6, 7]. Recommendations on cancer management during the pandemic include the implementation of telemedicine for the outpatient treatment of cancer survivors to minimize face-to-face appointments [8]. Oncological surgery, chemotherapy and radiotherapy should be continued based on priorities, while surgeries due to benign diseases should be postponed [9].

Treatment delays in potentially curable disease could lead to inferior outcomes and have impact on the overall survival of our patients, with the risk of missing the optimal treatment window. As the COVID-19 pandemic will be a challenge for some time to come, new strategies in patient care are needed to minimize the risk of infection. New strategies may include telemedicine or self-sampling HPV test, which detects viral nucleic acid rather than morphological changes and thus does not rely on healthcare practitioners visualizing the cervix [10], and thereby provide early diagnosis and improved treatment options for our patients. Most importantly, awareness must be raised for the importance of screening examinations to avoid any further shift in tumor stages at the time of diagnosis.

The major limitations of the current study are its relatively small sample size of only 889 patients and its single center observational character. Despite these limitations, we were able to demonstrate that the COVID-19 pandemic led to a strong decline in the detection rate of newly diagnosed gynecological and breast cancers, which is in accordance with the findings of other subspecialties.

Declarations

Funding: The authors received no specific funding for this work.

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Availability of data and material: Data available on request due to privacy/ethical restrictions

Code availability: not applicable

Authors' contributions: I Tsibulak and C Marth: Protocol/project development

K Knoll, E Reiser, K Leitner, C Ebner, J Kögl: Data collection and management

K Knoll, E Reiser, I Tsibulak: Data analysis

K Knoll, E Reiser, K Leitner, C Ebner, J Kögl, I Tsibulak, C Marth: Manuscript writing/editing

Ethics approval: The ethics committee of the Medical University of Innsbruck, Austria approved the present study (IRB-Number 1163/2020).

Consent to participate: Not applicable

Consent for publication: Not applicable

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Tables

Table 1
Gynecological cancer patients' characteristics

Gynecological cancer patients diagnosed								
Parameter	Mar 16th to Apr 30st and Nov 3rd to Dec 31st 2019	Mar 16th to Apr 30st and Nov 3rd to Dec 31st 2020	Difference (%)	P value	May 1st to Nov 2nd 2019	May 1st to Nov 2nd 2020	Difference (%)	P value
Number of patients	29	16	-45%		102	57	-44%	
Age, median (range)	60 (34–83)	66 (28–93)		n.s. ¹	61 (25–96)	62 (30–95)		n.s. ¹
Reported tumor-associated symptoms at diagnosis								
No	5 (17%)	1 (6%)	-11%	n.s. ²	23 (22%)	19 (33%)	+11%	n.s. ²
Yes	16 (55%)	12 (75%)	+20%		60 (59%)	34 (60%)	+1%	
Unknown	8 (28%)	3 (19%)			19 (19%)	4 (7%)		
Referral of patients								
Patients themselves without symptoms	1 (3%)	0 (0%)	-3%	n.s. ²	0 (0%)	0 (0%)	0%	p < 0.001 ²
Patients themselves with symptoms	0 (0%)	0 (0%)	0%		3 (3%)	16 (28%)	+25%	
Specialist	20 (69%)	13 (81%)	+12%		79 (78%)	40 (70%)	-8%	
General practitioner	2 (8%)	3 (19%)	+11%		6 (6%)	1 (2%)	-4%	

¹Mann-Whitney U-test. ²χ² test. Abbreviations: n.s. non-significant.

March 16th, 2020 – April 30st, 2020 and November 3rd, 2020 – December 31st, 2020 refers to the lockdown periods 1 and 2, respectively. May 1st, 2020 – November 2nd, 2020 refers to the time between the two lockdowns.

<i>Gynecological cancer patients diagnosed</i>								
Emergency	3 (10%)	0 (0%)	-10%		2 (2%)	0 (0%)	-2%	
Unknown	3 (10%)	0 (0%)			12 (11%)	0 (0%)		
Leading comorbidities								
None	6 (21%)	3 (19%)	-2%	n.s. ²	28 (27%)	26 (46%)	+ 19%	p = 0.010²
Cardiovascular disease	8 (28%)	7 (44%)	+ 16%		20 (20%)	16 (28%)	+ 8%	
Malignant disease	3 (10%)	0 (0%)	-10%		14 (14%)	4 (7%)	-7%	
Respiratory disease	0 (0%)	0 (0%)	0%		2 (2%)	3 (5%)	+ 3%	
Infectious disease	0 (0%)	0 (0%)	0%		2 (2%)	0 (0%)	-2%	
Rheumatic disease	0 (0%)	0 (0%)	0%		0 (0%)	0 (0%)	0%	
Endocrine & metabolic	1 (3%)	1 (6%)	+ 3%		9 (9%)	3 (5%)	-4%	
Psychiatric disorders	3 (10%)	2 (13%)	+ 3%		2 (2%)	3 (5%)	+ 3%	
Others	1 (3%)	1 (6%)	+ 3%		4 (4%)	0 (0%)	-4%	
Unknown	7 (25%)	2 (12%)			21 (20%)	2 (4%)		
Frontline therapy								
Operation	22 (75%)	10 (63%)	-12%	n.s. ²	68 (66%)	43 (74%)	+ 8%	n.s. ²
Neoadjuvant chemotherapy	3 (11%)	3 (19%)	+ 8%		17(17%)	8 (14%)	-3%	

¹Mann-Whitney U-test. ²χ² test. Abbreviations: n.s. non-significant.

March 16th, 2020 – April 30st, 2020 and November 3rd, 2020 – December 31st, 2020 refers to the lockdown periods 1 and 2, respectively. May 1st, 2020 – November 2nd, 2020 refers to the time between the two lockdowns.

<i>Gynecological cancer patients diagnosed</i>								
Neoadjuvant endocrine therapy	0 (0%)	0 (0%)	0%		0 (0%)	0 (0%)	0%	
Radiation	0 (0%)	0 (0%)	0%		2 (2%)	1 (2%)	0%	
Combined chemoradiation	3 (11%)	1 (6%)	-5%		11 (11%)	2 (4%)	-7%	
COVID associated treatment delay	0 (0%)	0 (0%)	0%		0 (0%)	0 (0%)	0%	
Palliative therapy	0 (0%)	1 (6%)	+ 6%		3 (3%)	2 (4%)	+ 1%	
Unknown	1 (3%)	1 (6%)			1 (1%)	1 (2%)		
Diagnosis								
Ovarian cancer	13 (45%)	9 (56%)	+ 11%	n.s. ²	40 (39%)	23 (40%)	+ 1%	n.s. ²
Endometrial cancer	7 (24%)	6 (38%)	+ 14%		29 (28%)	19 (33%)	+ 5%	
Cervical cancer	5 (18%)	1 (6%)	-12%		19 (19%)	5 (9%)	-10%	
Vulva cancer	2 (7%)	0 (0%)	-7%		6 (6%)	6 (10%)	+ 4%	
Sarcoma	1 (3%)	0 (0%)	-3%		4 (4%)	2 (4%)	0%	
Others	1 (3%)	0 (0%)	-3%		4 (4%)	2 (4%)	0%	
FIGO stage ovarian cancer								
I	3 (23%)	1 (11%)	-12%	n.s. ²	12 (30%)	6 (26%)	-4%	n.s. ²
II	1 (7%)	0 (0%)	-7%		1 (3%)	1 (4%)	+ 1%	
¹ Mann-Whitney U-test. ² χ ² test. Abbreviations: n.s. non-significant.								
March 16th, 2020 – April 30st, 2020 and November 3rd, 2020 – December 31st, 2020 refers to the lockdown periods 1 and 2, respectively. May 1st, 2020 – November 2nd, 2020 refers to the time between the two lockdowns.								

<i>Gynecological cancer patients diagnosed</i>								
III	7 (55%)	5 (56%)	+ 1%		19 (48%)	10 (44%)	-4%	
IV	2 (15%)	0 (0%)	-15%		6 (15%)	6 (26%)	+ 11%	
Unknown	0 (0%)	3 (33%)			2 (4%)	0 (0%)		
FIGO stage endometrial cancer								
I	7 (100%)	5 (83%)	-17%	n.s. ²	23 (80%)	16 (85%)	+ 5%	n.s. ²
II	0 (0%)	0 (0%)	0%		1 (3%)	2 (10%)	+ 7%	
III	0 (0%)	0 (0%)	0%		0 (0%)	1 (5%)	+ 5%	
IV	0 (0%)	0 (0%)	0%		3 (10%)	0 (0%)	-10%	
Unknown	0 (0%)	1 (17%)			2 (7%)	0 (0%)		
¹ Mann-Whitney U-test. ² χ ² test. Abbreviations: n.s. non-significant.								
March 16th, 2020 – April 30st, 2020 and November 3rd, 2020 – December 31st, 2020 refers to the lockdown periods 1 and 2, respectively. May 1st, 2020 – November 2nd, 2020 refers to the time between the two lockdowns.								

Table 2
Breast cancer patients' characteristics

Breast cancer patients diagnosed								
Parameter	Mar 16th to Apr 30st and Nov 3rd	Mar 16th to Apr 30st and Nov 3rd	Difference (%)	P value	May 1st to Nov 2nd 2019	May 1st to Nov 2nd 2020	Difference (%)	P value
Number of patients	115	55	-52%		148	157	+ 6%	
Age, median (Range)	63 (32–90)	60 (28–93)		n.s. ¹	59 (21–90)	62 (25–96)		p = 0.035 ¹
Reported tumor-associated symptoms at diagnosis								
No	78 (68%)	25 (45%)	-23%	p = 0.013 ²	98 (67%)	81 (51%)	-16%	p = 0.022 ²
Yes	36 (31%)	30 (55%)	+ 24%		48 (32%)	75 (48%)	+ 16%	
Unknown	1 (1%)	0 (0%)			2 (1%)	1 (1%)		
Referral of patients								
Patients themselves without symptoms	4 (3%)	1 (2%)	-1%	n.s. ²	7 (5%)	8 (5%)	0%	n.s. ²
Patients themselves with symptoms	13 (11%)	12 (21%)	+ 10%		11 (8%)	16 (10%)	+ 2%	
Specialist	94 (82%)	40 (73%)	-9%		123 (83%)	131 (84%)	+ 1%	
General practitioner	3 (3%)	1 (2%)	-1%		5 (3%)	2 (1%)	-2%	

¹Mann-Whitney U-test. ²χ² test. Abbreviations: n.s. non-significant.

March 16th, 2020 – April 30st, 2020 and November 3rd, 2020 – December 31st, 2020 refers to the lockdown periods 1 and 2, respectively. May 1st, 2020 – November 2nd, 2020 refers to the time between the two lockdowns.

Breast cancer patients diagnosed								
Emergency	0 (0%)	1 (2%)	+ 2%		0 (0%)	0 (0%)	0%	
Unknown	1 (1%)	0 (0%)			2 (1%)	0 (0%)		
Leading comorbidities								
None	55 (47%)	35 (64%)	+ 17%	n.s. ²	84 (57%)	83 (53%)	-4%	n.s. ²
Cardiovascular disease	28 (24%)	10 (18%)	-6%		22 (15%)	38 (24%)	+ 9%	
Malignant disease	6 (5%)	5 (9%)	+ 4%		13 (9%)	14 (9%)	0%	
Respiratory disease	4 (4%)	0 (0%)	-4%		6 (4%)	8 (5%)	+ 1%	
Infectious disease	0 (0%)	0 (0%)	0%		4 (3%)	2 (1%)	-2%	
Rheumatic disease	2 (2%)	1 (2%)	0%		0 (0%)	0 (0%)	0%	
Endocrine & metabolic	16 (14%)	1 (2%)	-12%		15 (10%)	6 (4%)	-6%	
Psychiatric disorders	2 (2%)	3 (5%)	+ 3%		3 (2%)	3 (2%)	0%	
Others	1 (1%)	0 (0%)	-1%		1 (1%)	0 (0%)	-1%	
Unknown	1 (1%)	0 (0%)			0 (0%)	3 (2%)		
Frontline therapy								
Surgery	82 (71%)	33 (60%)	-11%	n.s. ²	97 (66%)	98 (62%)	-4%	n.s. ²
Neoadjuvant chemotherapy	20 (17%)	15 (27%)	+ 10%		30 (20%)	35 (22%)	+ 2%	

¹Mann-Whitney U-test. ²χ² test. Abbreviations: n.s. non-significant.

March 16th, 2020 – April 30st, 2020 and November 3rd, 2020 – December 31st, 2020 refers to the lockdown periods 1 and 2, respectively. May 1st, 2020 – November 2nd, 2020 refers to the time between the two lockdowns.

<i>Breast cancer patients diagnosed</i>								
Neoadjuvant endocrine therapy	10 (9%)	5 (9%)	0%		15 (10%)	19 (12%)	+ 2%	
Radiotherapy	0 (0%)	0 (0%)	0%		0 (0%)	0 (0%)	0%	
Palliative therapy	3 (3%)	2 (4%)	+ 1%		6 (4%)	4 (3%)	-1%	
Tumor stage								
Tis	10 (9%)	2 (4%)	-5%	p = 0.047 ²	14 (9%)	11 (7%)	-2%	n.s. ²
T1	72 (62%)	24 (43%)	-19%		78 (53%)	81 (52%)	-1%	
T2	17 (15%)	13 (24%)	+ 9%		34 (23%)	33 (21%)	-2%	
T3	7 (6%)	6 (11%)	+ 5%		13 (9%)	23 (15%)	+ 6%	
T4	1 (1%)	3 (6%)	+ 5%		7 (5%)	7 (4%)	-1%	
Unknown	8 (7%)	7 (12%)			2 (1%)	2 (1%)		
¹ Mann-Whitney U-test. ² χ2 test. Abbreviations: n.s. non-significant.								
March 16th, 2020 – April 30st, 2020 and November 3rd, 2020 – December 31st, 2020 refers to the lockdown periods 1 and 2, respectively. May 1st, 2020 – November 2nd, 2020 refers to the time between the two lockdowns.								

Figures

Impact of lockdown on newly diagnosed cancers

Figure 1

Impact of COVID-19 lockdown on newly diagnosed cancers. Numbers of newly diagnosed cancers per month in 2020 compared to the same periods in 2019. Pre-lockdown refers to January 1st – March 15th, lockdown 1 to March 16th – April 30st, between lockdowns to May 1st – November 2nd and lockdown 2 to November 3rd – December 31st.

Figure 2

Impact of COVID-19 lockdown on newly diagnosed gynecological cancers. Numbers of newly diagnosed gynecological cancers per month in 2020 compared to the same periods in 2019. Pre-lockdown refers to January 1st – March 15th, lockdown 1 to March 16th – April 30st, between lockdowns to May 1st – November 2nd and lockdown 2 to November 3rd – December 31st.

Figure 3

Impact of COVID-19 lockdown on newly diagnosed breast cancers. Numbers of newly diagnosed breast cancers per month in 2020 compared to the same periods in 2019. Pre-lockdown refers to January 1st – March 15th, lockdown 1 to March 16th – April 30st, between lockdowns to May 1st – November 2nd and lockdown 2 to November 3rd – December 31st.