




Management of breast cancer in an EUSOMA-accredited Breast Unit in Lombardy, Italy, during the COVID-19 pandemic

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The severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) pandemic poses extra challenges for the management and treatment of cancer patients. Scarce evidence has been published in the last months, and there is still no consensus on how to ensure the standard of care for these patients avoiding the risk of infection.^{1,2} Therefore, in Lombardy (Italy) every institute, including IRCCS Maugeri of Pavia, is adopting internal procedures to reorganize the health care management.

In Italy, the first outbreak of this pandemic occurred at the end of February in a small city, which is about 45 km far from our center. Notably, SARS-CoV-2 caused more than 71 300 infections and about 13 200 deaths in the region.³

Due to the virus' high prevalence in Lombardy, several hospitals have reorganized themselves as COVID-19 center and elective surgery has been interrupted. Thus, some patients affected by cancer could no longer be admitted to hospital and properly treated.

On one hand, cancer patients are at higher risk of COVID-19 infection and more likely have higher morbidity and mortality than the general population.^{4,5} On the other hand, early diagnosis and treatment of cancer patients should not be postponed nor compromised during a pandemic. Need for any interventional procedure must be balanced against increased risk of infection and should be evaluated on a case-by-case basis to address urgency of procedures.²

Lombardy health care system has suggested guidelines to manage COVID-19-free breast cancer patients needing hospitalization, and a color code was applied to each patient as following: red code (high priority, within 4 weeks), yellow code (medium priority, within 8 weeks), and green code (low priority, >8 weeks).

The Breast Unit (BU) of IRCCS Maugeri is an EUSOMA-accredited tertiary referral center which performs more than 1100 breast surgical procedures every year, including 500 procedures for primary breast cancer. At the beginning of the pandemic, breast cancer patients' therapeutic and diagnostic paths had to be modified in order

to guarantee early treatment to the most critical patients with non-deferrable medical conditions.

We decided to delay the treatment of benign disease or low-grade malignancies and to postpone reconstructive surgery.

Every patient hospitalized for scheduled surgery underwent blood examinations (to rule out leukocytosis or lymphopenia) and a chest X-ray. Moreover, patients filled out specific questionnaires to self-certify the absence of symptoms in the previous 14 days or contacts with COVID-19-infected subjects. From March 21, 2020, specific pathways of access to COVID-19 areas were created, since our institute was partially converted as a COVID-19 referral center.

In order to specifically protect breast cancer patients, breast elective surgery was interrupted from April 6 to April 18, 2020. Then, breast surgical activities restarted and we improved our safety measures as follows:

- All the medical and nursing staff and patients performed screening for SARS-CoV-2 infection, provided through nasopharyngeal swab.
- The patients stayed in single rooms to minimize contacts with other patients. The admission of relatives to the ward was not allowed.
- No prehospitalization was performed to limit hospital access; all preoperative routine assessment was performed the day before surgery during hospitalization.
- Patients who needed localization of sentinel lymph node were submitted to indocyanine green (ICG) breast subdermic injection directly in the operating room. This avoided displacement through different departments, as before the COVID-19 era we were used to perform axillary lymphoscintigraphy at the Nuclear Medicine Department.
- Fresh tissue requiring an intraoperative consultation (or frozen section) could potentially cause infection. For that reason, the

TABLE 1 Clinical and pathological characteristics of breast cancer patients referred to our BU

	Breast cancer lesions operated in March-April 2019 (n = 93)	Breast cancer lesions during COVID-19 pandemic (n = 63)	P-value
Patients' age at diagnosis (years)	58 (±15.5)	61 (±13.8)	.16
Neo-adjuvant treatment			
No	83 (89%)	58 (92%)	.56
Yes	10 (11%)	5 (8%)	
Surgery ^a			
Lumpectomy	78 (84%)	47 (69%)	.03
Mastectomy	15 (16%)	21 (31%)	
SLNB ^a			
No	40 (43%)	26 (38%)	.54
Yes	53 (57%)	42 (62%)	
Postoperative stay (days)	2.5 (±1.6)	2.8 (±1.7)	.26
Complications			
Yes	2 (2%)	3 (5%)	.36
No	91 (98%)	60 (95%)	
Histology ^a			
Benign	29 (31%)	3 (4%)	<.00001
DCIS	6 (6%)	3 (4%)	
CDI	49 (53%)	42 (62%)	
CLI	9 (10%)	20 (30%)	
pT stage ^a			
pTIS/Benign lesions	35 (38%)	6 (9%)	.0003
pT1	46 (49%)	40 (59%)	
pT2	12 (13%)	15 (22%)	
pT3	0 (0%)	6 (9%)	
pT4	0 (0%)	1 (1%)	
pN stage ^a			
pN0/pNx	74 (80%)	54 (79%)	.98
pN1-2-3	19 (20%)	14 (21%)	
Indication for adjuvant CT			
No	74 (80%)	24 (38%)	<.00001
Yes	19 (20%)	39 (62%)	

^aValues refer to total number of lesions n = 68. Five patients have bilateral breast cancer.

pathology service used a cryostat microtome that prevents the dispersion of any aerosol produced during the procedure as well as all necessary personal protective equipment (PPE).

- We continued to guarantee our multidisciplinary meetings in a restricted form: one surgeon, one oncologist, and one radiotherapist, by respecting adequate social distance and by wearing a mask. Other staff members could contribute through a conference call.

- Genetics consults were performed by a video call between patients and physicians.
- Daily ward activity was planned in order to have the least number of team workers present to minimize the risk of infection.
- The Biobank for Research "Bruno Boerchi" at the IRCCS Maugeri did not stop collecting biological samples.

From March 21 to April 24, 2020, we treated a total of 63 patients (vs 93 in the same timeframe in 2019). As compared to the last year, a difference was found in benign breast lesions (31% in 2019% vs 4% in 2020, $P < .00001$, Table 1).

Only one breast cancer patient, aged more than 75, developed respiratory symptoms and resulted positive for COVID-19 during the hospitalization. She was immediately transferred to a dedicated COVID-19 ward, and thanks to our safety measures none of our staff or other patient became infected.

We did not observe delays in histological diagnosis nor changes in radiotherapy or chemotherapy plans.

We had a significant reduction in diagnostic activity (about 70%) and a significant reduction in the number and duration of operating sessions.

In conclusion, the reorganization of our BU and ward ensured adequate and safety treatment for breast cancer patients.

CONFLICT OF INTEREST

None.

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