

# Impact of the COVID-19 pandemic on a breast cancer surgery program. Observational case-control study in a COVID-free hospital

Benigno Acea-Nebril MD, PhD  | Alejandra García-Novoa MD, PhD  |  
 Lourdes García-Jiménez MD | Carla Escribano-Posada MD | Carlota Díaz-Carballada MD |  
 Alberto Bouzón-Alejandro MD, PhD | Carmen Conde-Iglesias MD

Breast Unit, Department of General and Digestive Surgery, University Hospital Complex A Coruña, A Coruña, Spain

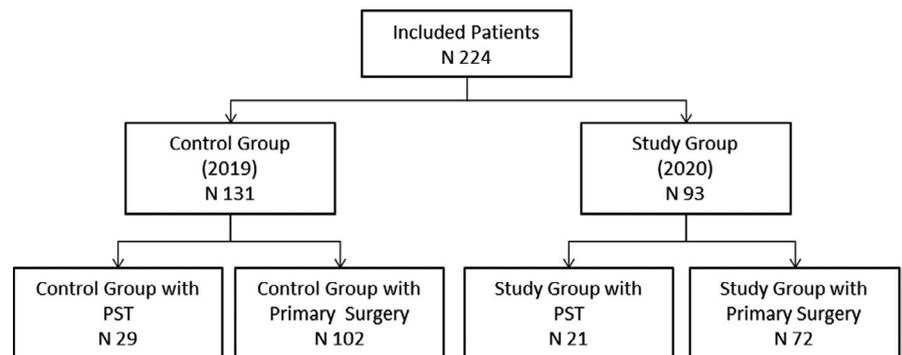
**Correspondence:** Alejandra García-Novoa, Breast Unit, Department of General and Digestive Surgery, University Hospital Complex A Coruña, Calle Atocha Baja 3, 6°B, A Coruña 15001, Spain.

Email: malejandragarcianovoa@gmail.com

The emergence of the COVID-19 pandemic has heavily impacted the health care systems of most infected countries and has required the prioritization of hospital resources to care for the patients critically affected by the disease. This prioritization has at times required the suspension of oncologic surgery programs for women with breast cancer, causing delays in the first treatment. Although the pandemic has affected all hospitals throughout the country, there are two circumstances that can facilitate the organization of priority programs for oncologic surgery. First, the pandemic has had an uneven effect among cities, and there are therefore geographical areas with a low incidence of the disease, which allows for greater availability of health care resources for oncological programs. Secondly, COVID-free hospitals facilitate the maintenance of cancer programs, as long as screening for the infection is guaranteed in the treated patients. Various European studies<sup>1-5</sup> have provided their experience with patients with breast cancer during the COVID-19 pandemic but have

not reported the impact on hospital resources or on the delay in treating these patients. The aim of this study was to analyze the impact of the COVID-19 pandemic on an oncologic surgery program in our hospital's breast unit.

We designed a case-control study of women diagnosed with a breast carcinoma. Patients diagnosed and treated in our breast unit during the state of emergency due to the COVID-19 pandemic (16th of March to the 31st of May 2020) constituted the study group. Patients treated during the same dates in 2019 were the control group. A total of 93 patients were diagnosed during the study period; of these, 72 underwent surgery and 21 underwent primary systemic therapy (Figure 1). The study group patients underwent a polymerase chain reaction test prior to the surgery, and none were positive. All patients scheduled for surgery underwent surgery, except for two octogenarian patients whose underwent hormone therapy.



**FIGURE 1** Clinical algorithm

PST: primary systemic therapy

The surgical activity reduced by 30% compared with control period. Similar indication was performed for the oncoplastic and reconstructive procedures in both groups (Table 1). Likewise, there was no increase in the rate of postoperative complications, and there were no recorded cases of respiratory infection among the study group who underwent surgery. There were no recorded infections among the medical personnel. The study group showed a not statistically significant increase in the indication for axillary lymph node dissection. Similarly, the study group had a significant decrease in the duration of the surgical interventions and hospital stay due to an increase

in outpatient management, especially for those who underwent a conservative procedure. The health care delays did not significantly change during the pandemic. Radiotherapy changed significantly by increasing the indication for superhypo-fractionation to reduce the duration of the breast irradiation (26 Gy in 5 fractions of 5.2 Gy).

The presence of COVID-free hospitals facilitated the maintenance of oncologic programs. Our breast unit is located in a COVID-free hospital in a city with a low incidence rate of COVID-19, with a mortality of 23 deaths per 100 000 inhabitants, lower than the national mean (60 deaths/100 000 inhabitants) and the large major

**TABLE 1** Clinical and health care characteristics of patients who underwent surgery

	Control group (N = 102)	Study group (N = 72)	P
Age, y	56.7 ± 12.7	58.1 ± 12.9	.476
Type of surgery			
Lumpectomy	57 (55.9%)	46 (63.9%)	.730
Oncoplasty	10 (9.8%)	6 (8.3%)	
Mastectomy	20 (19.6%)	11 (15.3%)	
Mastectomy + reconstruction	9 (8.8%)	6 (8.3%)	
Deferred reconstruction <sup>a</sup>	6 (5.9%)	3 (4.2%)	
Salvage surgery			
ALND	1 (1.0%)	0 (0.0%)	.459
Margin expansion	7 (7.2%)	7 (10.1%)	
Mastectomy	2 (2.1%)	0 (0.0%)	
Margin expansion + AL	0 (0.0%)	1 (1.4%)	
Mastectomy + AL	1 (1.0%)	0 (0.0%)	
Lymph node staging			
SLNB	67 (65.7%)	44 (61.1%)	<b>.053</b>
SLNB + ALND	7 (6.9%)	2 (2.8%)	
ALND	5 (4.9%)	12 (16.7%)	
No axillary study	23 (22.5%)	14 (19.4%)	
Surgical time, min	104.9 ± 47.7	93.8 ± 62.9	<b>.015</b>
Mean stay, days	1.3 ± 0.9	0.6 ± 0.9	<b>&lt;.001</b>
Mean stay, days			
Lumpectomy	0.9 ± 0.4	0.3 ± 0.5	<b>&lt;.001</b>
Oncoplasty	1.7 ± 1.3	0.7 ± 0.5	
Mastectomy	1.9 ± 1.2	1.5 ± 0.9	
Mastectomy + reconstruction	2.2 ± 0.4	2.8 ± 1.1	
Deferred reconstruction <sup>a</sup>	3	0.1 ± 0.3	
Complications	24 (23.5%)	14 (19.4%)	.617
Readmissions	2 (2.0%)	3 (4.2%)	.363
Delay in PST-surgery, days	45.5 ± 30.0	38.4 ± 7.0	.722
Delay in surgery—adjuvant therapy	57.7 ± 17.1	53.4 ± 19.6	.410
Delay in surgery—radiotherapy	60.5 ± 14.4	59.1 ± 16.0	.667
Delay in surgery—chemotherapy	44.5 ± 23.2	27.5 ± 12.0	.344
Duration of radiotherapy	26.7 ± 39.9	12.1 ± 8.4	<b>.001</b>

Abbreviations: ALND, axillary lymph node dissection; NAC, nipple-areolar complex; PST, primary systemic therapy; SLNB, sentinel lymph node biopsy. The bold corresponds to the values with statistically significant differences ( $p < .05$ ).

<sup>a</sup>Includes NAC reconstruction and implant replacement.

cities such as Madrid (127 deaths/100 000 inhabitants). These facts have allowed us to maintain 70% of the surgical activity compared with the same period last year. This situation also facilitated the implementation of symmetrization in the oncoplastic surgery and immediate reconstruction after mastectomy, thereby ensuring the same opportunities for the study patients. This fact was important because the national recommendations for breast cancer surgery programs during the COVID pandemic recommended the suppression of these procedures, which, in our opinion, causes an ethical conflict related to the loss of opportunity. We also have to remember that, unlike other oncologic operations (pancreas, liver, esophagus), patients undergoing breast surgery do not require an intensive care room and therefore do not compete with patients affected by the pandemic over this health care resource and only require a ventilator in the operating room.

In conclusion, the availability of a COVID-free hospital in a geographical area of low incidence of the disease allows for maintenance of a breast cancer program. We can simultaneously obtain some benefits, such as the increase in outpatient surgery and superhypofractionation in radiotherapy. We believe that this experience can be an example for the planning of breast cancer surgery programs during the next COVID pandemic. In our opinion, individual evaluation of the available resources in each hospital should guide the prioritization for the treatment of patients with

cancer, as reflected in the guidelines of the American College of Surgeons.<sup>6</sup>

#### ORCID

Benigno Acea-Nebril  <https://orcid.org/0000-0002-3340-4402>

Alejandra García-Novoa  <https://orcid.org/0000-0002-7141-7570>

#### REFERENCES

1. Casella D, Fusario D, Casseti D, et al. The patient's pathway for breast cancer in the COVID-19 era: an Italian single-center experience. *Breast J.* 2020;26(8):1589-1592.
2. Salgarello M, Barone L, Visconti G, Pagliara DM, Mangialardi ML. Considerations for performing immediate breast reconstruction during the COVID-19 pandemic. *Breast J.* 2020;26(7):1485-1487.
3. Corsi F, Caruso A, Albasini S, et al. Management of breast cancer in an EUSOMA-accredited Breast Unit in Lombardy, Italy, during the COVID-19 pandemic. *Breast J.* 2020;26(8):1609-1610.
4. Tasdoven I, Cakmak GK. Breast cancer surgery under the shadow of COVID-19: Quest for optimal axillary management after neo-adjuvant chemotherapy. *Breast J.* 2020;26(8):1606-1608.
5. Testori A, Alloisio M, Errico V, Perron G, Gatzemeier W, Tinterri C. Extraordinary emergency measures set up by a Breast Unit to prevent COVID-19: report of our experience. *Breast J.* 2020;26(8):1611-1612.
6. American College of Surgeon. COVID-19: Recommendations for Management of Elective Surgical Procedures. [https://www.facs.org/-/media/files/covid19/recommendations\\_for\\_management\\_of\\_elective\\_surgical\\_procedures.ashx](https://www.facs.org/-/media/files/covid19/recommendations_for_management_of_elective_surgical_procedures.ashx). Accessed July 2020.