Patient journey of triple-negative breast cancer in public and private health care systems in Colombia

Sandra Aruachán Vesga[6]; Manuel González[1]; Marco Torregroza[1]; Anlly Rodríguez Spir[1]; Danis Mestra[1]; Javier Ospina Martínez[1]; Adriana O'byrne Olano[2]; Ana María García[3]; Ray Manneh Kopp[4]; Paula Andrea Londoño[5]; Claudia C. Beltran[6]; Pedro Gutierrez[6]; Juan Urrego-Reyes[6]

[1]Clínica IMAT Oncomedica Auna (IMAT oncomedica auna Clinic), Montería, Colombia; [2]Clínica Imbanaco (Imbanaco Clinic), Cali, Colombia; [3]Fundación Clínica Valle del Lili (Valle del Lili Clinic Foundation), Cali, Colombia; [4]Sociedad de Oncología y Hematología del Cesar (Cesar Hemato-Oncology Society), Valledupar, Colombia; [5]Oncólogos de Occidente, Pereira, Colombia; [6]MSD Colombia, Bogotá, Colombia

Background and rationale

Globally, and for the first time, breast cancer (BC) is the most frequently diagnosed type of cancer, with approximately 2.2 million new cases and 684,000 estimated deaths in 2020, behind only lung cancer in terms of prevalence and mortality.[1]

BC in Colombia is also estimated to be the most frequent cancer, with about 15,600 new cases in 2020.[2] Among the different subtypes of BC, the term "triple-negative" breast cancer (TNBC) describes a class of tumors that displays different clinical and biological features. In the country, this type of cancer has shown worse prognosis and survival rates than in patients with other types of breast cancer.

In Colombia, 2 health systems coexist: 1) the contributory health system (CR) which covers all individuals in the Colombian territory and is financed by general taxes and social contributions; in addition, it includes a smaller percentage of private insurance, paid by some employers and individuals; 2) the subsidized health system (SR) which covers individuals who do not have economic capacity for social contributions and taxes, being health services covered by the government. There is a minority part of the population that are included in "Other" health systems due to special circumstances; like military forces and teachers.

Given that there is minimal evidence, beyond the statistics presented above, of the patient pathway for this subtype of breast cancer in Colombia, and considering the complex health system, it is essential to know what is the pathway of care for these patients and the critical points along the way. Having this understanding is necessary to improve outcomes in this challenging pathology.

Objective

To describe the patient journey in terms of treatment patterns, resource utilization, stage of disease at diagnosis of triple negative breast cancer patients in Colombia.

Methods

This was an observational, descriptive, and retrospective multicentric cohort study with chart review. Clinical records from patients diagnosed with TNBC who attended those institutions from January 1st, 2015, to December 31st, 2019, were analyzed to describe the epidemiology, clinical profile, HCRU (Health Care Resourse Utilization).

The institutions selected for this study were reference centers and included patients from different health insurance types (contributory and subsidized) and regions of the country.

Patients ≥18 years with at least 1 consultation related to ICD-10 code C50 were included.

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Results

A A total of 301 patients were included in the analysis. Of them, 56% were affiliated to CR and 38% to SR. At diagnosis, 20% were classified as early stage, including: 2.7% as stage IA, 0.3% IB, 17% IIA. 53% classified as locally advanced including: 19% IIB, 11% IIIA, 20% IIIB, 3% IIIC. And 5% as metastatic disease (stage IV). 21% had unknown staging.

Regarding treatment patterns independent of clinical stage, 280: (93%) of the patients received neoadjuvant chemotherapy. Polychemotherapy based on doxorubicin + cyclophosphamide was the most commonly used in this group of patients (29%), followed by paclitaxel in monotherapy (19%), cyclophosphamide + doxorubicin + 5-fluorouracil (18.2%), and carboplatin + paclitaxel (17.9%).

A total of 117: (39%) patients received adjuvant chemotherapy. In these patients, paclitaxel monotherapy was the most common treatment (21%), followed by capecitabine monotherapy (20%) and polychemotherapy based on doxorubicin + cyclophosphamide (19%).

The most commonly used treatment strategy for early-stage and locally advanced disease was chemotherapy + surgery + radiotherapy (32%). Regarding metastatic disease, the most used treatment strategy was chemotherapy + radiotherapy (12%) (**Table 1**).

Table 1. Treatment strategies received by TNBC patients according to disease stage by health system

Treatment strategies	Contributory (CR) (n=170)	Subsidized (SR) (n=114)	Other (n=17)	Total (n=301)
Early-stage[a]/locally advanced disease[b]				
Surgery	5 (1,7%)	(0%)	(0%)	5 (1,7%)
Surgery + radiotherapy	19 (6,3%)	18(6%)	4 (1,3%)	41(13,6%)
Surgery + chemotherapy + radiotherapy	7 (2,3%)	3 (1%)	1 (0,3%)	11 (3,7%)
Surgery + radiotherapy + chemotherapy	25 (8,3%)	21 (7%)	(0%)	46 (15,3%)
Chemotherapy	16 (5,3%)	9 (3%)	3 (1%)	28 (9,3%)
Chemotherapy + surgery	33 (11%)	27 (9%)	2 (0,7%)	62 (20,6%)
Chemotherapy + surgery + radiotherapy	56 (18,6%)	34 (11,3%)	7 (2,3%)	97 (32,2%)
Chemotherapy + radiotherapy	4 (1,3%)	(0%)	(0%)	4 (1,3%)
Radiotherapy	3 (1%)	2 (0,7%)	(0%)	5 (1,7%)
Radiotherapy + chemotherapy	2 (0,7%)	(0%)	(0%)	2 (0,7%)
Metastatic disease[c]				
Surgery + chemotherapy	(0%)	1 (0,3%)	(0%)	1 (0,3%)
Chemotherapy + palliative care + radiotherapy	1 (0,3%)	(0%)	(0%)	1 (0,3%)
Chemotherapy	22 (7,3%)	6 (2%)	(0%)	28 (9,3%)
Chemotherapy + surgery	(0%)	1 (0,3%)	(0%)	1 (0,3%)
Chemotherapy + radiotherapy	22 (7,3%)	13 (4,3%)	1 (0,3%)	36 (12%)
Chemotherapy + palliative care	1 (0,3%)	1 (0,3%)	(0%)	2 (0,7%)
Radiotherapy	8 (2,7%)	3 (1%)	(0%)	11 (3,7%)
Radiotherapy + chemotherapy	6 (2%)	3 (1%)	1 (0,3%)	10 (3,3%)

[a]Early-stage disease includes clinical stages 0-IIA.
[b]Locally advanced disease includes clinical stages IIB-IIIC.
[c]Metastatic disease includes clinical stage IV.

Regarding resource utilization, a total of 1778 medical consultations were made to this cohort during the analyzed period, the most common being clinical oncology (18.5%), followed by oncological radiotherapy (3%) (**Table 2**). Furthermore, 2737 diagnostic studies were performed, most in the ambulatory setting and for the CR. The most common diagnostic test image was mammography (7.2%) (**Table 2**).

Table 2. Use of outpatient health system services during the route of care for patients with triple-negative breast cancer

	Contributory (CR) n (%)	Subsidized (SR) n (%)	Other n (%)	Total n (%)
Type of outpatient service (n=5607)				
Consultation by specialized medicine	**1300 (23,2%)**	**456 (8,1%)**	**22 (0,4%)**	**1778 (31,7%)**
Clinical oncology	755 (13,5%)	261 (4,7%)	21 (0,4%)	1037 (18,5%)
Oncological radiotherapy	147 (2,6%)	24 (0,4%)	0 (0%)	171 (3%)
Haemato-oncology	91 (1,6%)	11 (0,2%)	0 (0%)	102 (1,8%)
Mastology	29 (0,5%)	36 (0,6%)	0 (0%)	65 (1,2%)
Pain and palliative care	57 (1%)	2 (0%)	0 (0%)	59 (1,1%)
Diagnostic studies (n=2549)	**1518 (27,1%)**	**902 (16,1%)**	**129 (2,3%)**	**2549 (45,5%)**
Mammography	236 (4,2%)	149 (2,7%)	17 (0,3%)	402 (7,2%)
Breast ultrasound	227 (4%)	117 (2,1%)	13 (0,2%)	357 (6,4%)
Bone scintigraphy	186 (3,3%)	101 (1,8%)	12 (0,2%)	299 (5,3%)
Thorax tomography	165 (2,9%)	109 (1,9%)	14 (0,2%)	288 (5,1%)
Abdominal tomography	128 (2,3%)	68 (1,2%)	11 (0,2%)	207 (3,7%)
Laboratory tests and minor procedures (n=1280)				
Laboratory tests	803 (14,3%)	439 (7,8%)	23 (0,4%)	1265 (22,6%)
Minor procedures	15 (0,3%)	0 (0%)	0 (0%)	15 (0,3%)

The median diagnostic interval (DI) was 127 days, and the median treatment interval (TI) was 68. The median DI was 114 days in the CR and 137 days in the SR, while the median TI was 60 days in the CR versus 78.5 days in the SR.

Time intervals by clinical stage of cancer at diagnosis were calculated. The results showed that the attention times increased according to the severity of the clinical stage (**Table 3**).

Table 3. Time intervals in the care pathway of patients with triple-negative breast cancer by clinical stage of disease at diagnosis

	Interval to first image[a]		Diagnostic interval[b]		Treatment interval[c]	
Clinical stage	Median	IQR[d]	Median	IQR	Median	IQR
Unknown	55	101,25	118,5	146	61	49,5
Stage 0	30	0	119	0	68	0
Stage IA	28,5	54,5	130,5	113,5	79,5	93
Stage IB	245	0	328	0	232	0
Stage IIA	47	94	130	131	65	56
Stage IIB	52	66	91	126	87,5	110,75
Stage IIIA	59	69	86	113	99	363
Stage IIIB	123	191,5	169	231	78	90,25
Stage IIIC	114,5	207,5	250	223,25	73	57,75
Estadio IV	273,5	314,75	259,5	320,25	61	65

[a]Diagnostic interval (DI): time from detecting the first sign/symptom or altered mammography to histopathologic diagnosis.
[b]Treatment interval (TI): time from diagnosis to start of treatment.
[c]Interval to first image: time from diagnostic suspicion to the first diagnostic image.
[d]IQR: interquartile range

Conclusion

The TNBC patient´s journey in Colombia showed that the treatment patterns follow international recommendations. However, it was evidenced that there are delays at different points in the patient care pathway that impact the DI and TI for both the CR and SR, being more significant in the SR.

There is a need to conduct studies that include new approaches introduced recently that could improve these patients' treatment patterns, health, and survival.

References

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Disclosure

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