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Impact Associated With Pertuzumab and Trastuzumab SC and IV Formulations Utilization in Metastatic HER2-Positive Breast Cancer Patients Treated in Brazilian SUS

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Introduction

The gold standard therapy for metastatic breast cancer (mBC) HER2-positive patients - double blockage with pertuzumab and trastuzumab (P+T) - is currently available in the Brazilian Sistema Único de Saúde (SUS) as intravenous (IV) formulations.

Despite important clinical and economic benefits that these two medicinal products bring to patients when administered intravenously (P IV + T IV), they require considerable healthcare resource utilization in their preparation, administration and monitoring and have significant impact to patients and healthcare professionals (HCP).

Recently, a subcutaneous (SC) fixed-dose combination of P+T (PT SC) providing comparable efficacy and safety has been registered and made available in the Private system in Brazil. This is a much less invasive formulation, preferred by the vast majority of patients and HCPs comparing to P IV +T IV, requiring considerably less administration (5-8 vs 60–150 minutes with IV formulations) and monitoring times (15-30 vs 30-120 minutes with IV formulations) [1, 2].

Objective

To estimate resource use associated with SC, fixed-dose combination of pertuzumab and trastuzumab (PT SC) and IV (P IV + T IV) formulations used to treat metastatic breast cancer (mBC) HER2-positive (HER2+) patients in the Brazilian Public System (Sistema Único de Saúde - SUS).

Method

Healthcare resource utilization (HRU) data and time associated with HCP tasks performed in mBC treatment with each formulation was collected from four experts - oncologist, nurse, pharmacist and hospital manager - interviews.

For each alternative, preparation (including catheter implantation), administration and monitoring times and costs were considered using official sources - Sistema de Gerenciamento da Tabela de Procedimentos, Medicamentos e OPM do SUS (SIGTAP) [3] and average salaries of nurses [4].

Impact to SUS - time spent by patients, HCPs, hospital stay and associated costs - was estimated for a 5 year period based on DataSUS data on mBC HER2+ patients currently treated at SUS and its projection to the upcoming 2024-2028 time horizon [5]. For the sake of this approach similar drug costs was assumed between SC and IV formulations.

Table 1. Estimated number of patients with metastatic breast cancer that will require anti-HER2 double blockade therapy with pertuzumab and trastuzumab in first line in Brazilian SUS in the upcoming 5-year period (extrapolation based on Data SUS data from 2021-23)*

Year	mBC Her2+ 1 line patients (expected to be) treated in SUS
2021	5.513
2022	9.894
2023	13.104
2024	13.569
2025	14.504
2026	15.250
2027	15.872
2028	16.404
Total	**75.599**

* Data extracted from DATASUS concerning 2021-2023 (HER-2+ patients : Metastático Mono P+T - Procedimento 0304020443 - QUIMIOTERAPIA COM DUPLO ANTI-HER-2 DO CARCINOMA DE MAMA HER-2 POSITIVO – 1ª LINHA) as of June 2024. Logarithmic projection performed to estimate the number of patients expected to be treated in SUS from 2024 to 2028 based on the growing trend registered in the previous 3 years (from 2021 to 2023).

Results

In a 1-year period (18 cycles), considering administration, chair times and costs with HCPs, P IV + T IV and PT SC formulations resulted in BRL 1,458 and BRL 170 per patient, respectively.

Table 2. Time and costs associated with P IV +T IV and P+T SC formulations in mBC patient first line annual treatment (18 cycles)

	Average cost (18 cycles)	Average cost per cycle	Total time (min)	Total time (h)
P IV + T IV	BRL 1,458	BRL 81	2,310	38.5
P+T SC	BRL 170	BRL 9	378	6.3
SC vs IV	**BRL 1,288**	**BRL 72**	**-1,932**	**- 32.2**

On average, PT SC formulation allows savings of 32.2 hours/patient vs IV formulations mainly due to the important reduction in administration and observation times.

Time savings with PT SC formulation would allow to treat 5 times more HER2+ mBC patients requiring 1-year treatment in SUS compared to P+T IV.

Table 3. Estimated time and costs associated with P IV +T IV and P+T SC formulations in mBC patient first line treatment in a 5-years period (2024-2028))

	2024 -28		
	Total time (h)	Total time (8h working days)	Cost (BRL)
P IV + T IV	2,910,562	363,820	110,199,113
P+T SC	476,274	59,534	12,853,978
SC vs IV	**- 2,434,288**	**- 304,286**	**-97,345,135**

Considering the 75,599 mBC HER2+ patients that are projected to require treatment at SUS in the 2024-2028 time period, the adoption of PT SC would result in BRL 12,853,977 compared to BRL 110,199,112 with P+T IV use - potential Public savings of up to BRL 97,345,134 for SUS.

Conclusions

Considering resource used and HCPs time required for IV and SC P+T preparation, administration and monitoring, switching from pertuzumab and trastuzumab IV to SC formulations could help SUS to save more than 97 million BRL in a 5 year period.

Additionally, it would ease hospital burden importantly by reducing patients time stays in the hospital, increasing their quality of life, allowing more patients to be treated in due time.

References

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