

THE COST OF STRONG OPIOID TREATMENT OF ONCOLOGICAL PAIN IN THE BRAZILIAN PRIVATE HEALTHCARE SYSTEM

ABSTRACT

OBJECTIVE:

To estimate the cost of treatment of cancer pain with four strong opioids (methadone, morphine, oxycodone, fentanyl) in the Brazilian private healthcare system between January and December 2010.

METHODOLOGY:

A claims database of over 57 HMOs was analyzed to recover combined use of strong opioids and oncological treatments between January and December 2010. Records showed expenditure with medications, materials, hospitalization, and procedures and diagnostics.

RESULTS:

Over the one-year study period, 293,918 patients made use of at least one of the four opioids. The total healthcare expenditure with these patients was R\$ 3,243,890,302.91 (R\$ 11,036.72/patient/year). Around 53% of these patients (157,104) made concomitant use of oncology treatments, representing around 74% of the total costs (R\$ 2,424,503,643.76), with an average cost of R\$ 15,432.48/patient/year. The remaining patients (136,814) had an average cost of R\$ 5,989.06 per patient/year. Within the oncology patient population, the total healthcare expenditure with the four opioids alone was R\$ 5,203,001.81. Fentanyl was the most commonly used opioid in about 66% of patients, followed by morphine (33%), methadone (1%) and oxycodone (0.8%). Around 17% of the oncology patient population made use of two or more opioids during the study period.

CONCLUSION:

Pain treatment of oncology patients is more costly for private payers in Brazil when compared with patients not receiving oncological treatment. Although 47% of patients were considered non-oncological, this is not certain as they could have received oncological treatment outside the study period or in a provider not covered by the database (e.g. public hospital). With about 17% of oncological patients receiving two or more opioid treatments with the 12 month period suggests opioid rotation is common.

INTRODUCTION

Chronic pain is characterized for being long-lasting and is usually associated with other serious chronic diseases. It might affect until 55% of the world's population¹ and causes physiological and psychological damages that can affect the working capacity and interaction with society².

Pain is one of the serious symptoms associated with cancer. Cancer pain is caused by irritating or damaging nerves, by stimulating nociceptors (pain sensitive nerve fibers), or by releasing chemicals that make nociceptors respond to normally non-painful stimuli. The roots for such perturbation can be the tumor itself or medical interventions in the diagnosis and treatment of cancer. Although guidelines contemplate its management, lack of treatment of cancer pain is a widespread problem. It is estimated that one out of two patients is not receiving the adequate cancer pain treatment³.

In a study with long-term hospitalized patients, approximately 25% of those with chronic cancer pain were not under analgesic therapy⁴. A recent study has demonstrated the cost of opioid use is directly related to the incidence of adverse events⁵.

In Brazil, pain is thought to be under treated, confirmed by the low use of opioids as reported by the WHO⁶.

The objective is to estimate the cost of treatment of cancer pain with four strong opioids (methadone, morphine, oxycodone, fentanyl) in the Brazilian private healthcare system between January and December 2010.

METHODOLOGY

The cohort was defined as all patients that used at least one opioid over the period of one year. This cohort was followed for costs related to exams, materials, medications, procedures and hospital fees.

The patients were divided in two groups, the ones in cancer treatment, defined by concomitant use of chemotherapy (CT) and the ones not undergoing CT.

The cost values refer to the ones paid by the Brazilian Private sector.

RESULTS

Between January and December of 2010, 293,918 patients used at least one opioid in the HMOs studied. The total number of opioid treatments were 332,082, indicating that around 11% of patients were treated with more than one opioid during the year.

The most used opioid in both cancer and non cancer patients was fentanyl, followed by morphine. In cancer patients methadone was more commonly used than oxycodone. (Table 1)

Table 1. Use of opioid treatments in cancer and non-cancer patients.

Active Ingredient	Total Number of Treatments			
	Without CT	Participation (%)	With CT	Participation (%)
FENTANYL	101,369	68.5%	120,723	65.6%
METHADONE	584	0.4%	1,749	1.0%
MORPHINE	44,877	30.3%	60,131	32.7%
OXYCODONE	1,190	0.8%	1,459	0.8%
Total	148,020	100.0%	184,062	100.0%

When considering costs, fentanyl also presents the highest costs, followed by morphine. However, methadone represents 2.5% of costs while representing only 1.0% of treatments. Oxycodone patients also represent double the costs, with 0.8% of treatments account for 1.9 to 1.4% of the costs.

Table 2. Total opioid treatment costs in cancer and non cancer patients

Active Ingredient	Total Treatment Cost			
	Without CT (R\$)	Participation (%)	With CT (R\$)	Participation (%)
FENTANYL	671,020,191	64.8%	2,039,993,127	62.5%
METHADONE	7,821,695	0.8%	82,319,469	2.5%
MORPHINE	336,507,793	32.5%	1,097,591,091	33.6%
OXYCODONE	20,150,884	1.9%	44,081,618	1.4%
Total	1,035,500,563	100.0%	3,263,985,305	100.0%

The average cost per non-cancer patient was R\$ 6,995.68 and for cancer patient was R\$ 17,733.08 (2.5 times higher) per year. The cost with materials (39%) accounted for the highest share of the total costs, followed by hospital fees (22%), procedures (21%), medications (17%) and exams (1%). This relationship holds true for both cancer and non-cancer patients.

Table 3. Average cost per patient per cost-category

Oncologicals:	With CT		Without CT	
	per patient	Partc. (%)	per patient	Partc. (%)
EXAMS	117.74	1%	25.77	0%
MATERIALS	6,012.85	34%	3,175.34	45%
MEDICATIONS	3,659.07	21%	917.77	13%
PROCEDURES	3,949.18	22%	1,441.67	21%
HOSPITAL FEES	3,994.23	23%	1,435.12	21%
TOTAL	17,733.08	100%	6,995.68	100%

CONCLUSION

Although cancer and non cancer patients have similar patterns of resource use, cancer patients present higher costs, that can be accounted for cancer patients necessity of more complex care, including some terminal cancer cases' patients. As a result, patients under cancer treatment usually require higher doses of opioids, leading to higher costs.

It is important to point out that fentanyl might have been used for both analgesia and anesthesia. Morphine is the second most used opioid in the Brazilian private healthcare system. The number of patients receiving more than one opioid also emphasizes the common opioid rotation.

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