Place of Death Among Patients With Cancer: A Brazilian Populational Data

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BACKGROUND

Cancer is still one of leading causes of mortality in the world. Brazil has been accompanying the change of profile in the causes of morbidity and mortality. Little is known about Place of Death (PoD) of cancer patients in Brazil.

PURPOSE

This study aims to describe the PoD of patients who died from cancer and its possible predictors in Brazil.

MATERIAL AND METHODS

Population-based observational study using information from the Brazilian Mortality Information System (SIM) (1996-2014). The dataset was obtained through the data science platform applied to health - FIOCRUZ. The study sample comprises 2,809,740 records (Fig. 1). The study outcome-PoD was dichotomized as Health Establishment (HE) and home. Independent variables included: gender; death's age; residence's geographic region; metropolis residence and tumor category according to ICD 10th. Data was first checked for missing values, if it occurs in more than 10.0% of records, the variable was excluded of analysis. Data was described using frequency; the differences between groups were obtained through qui-square tests. Odds Ratio (OR) and 95% confidence intervals (CI) were acquired through binary logistic regression; dependent variable - home versus HE. Analysis were performed using SPSS 21.0.
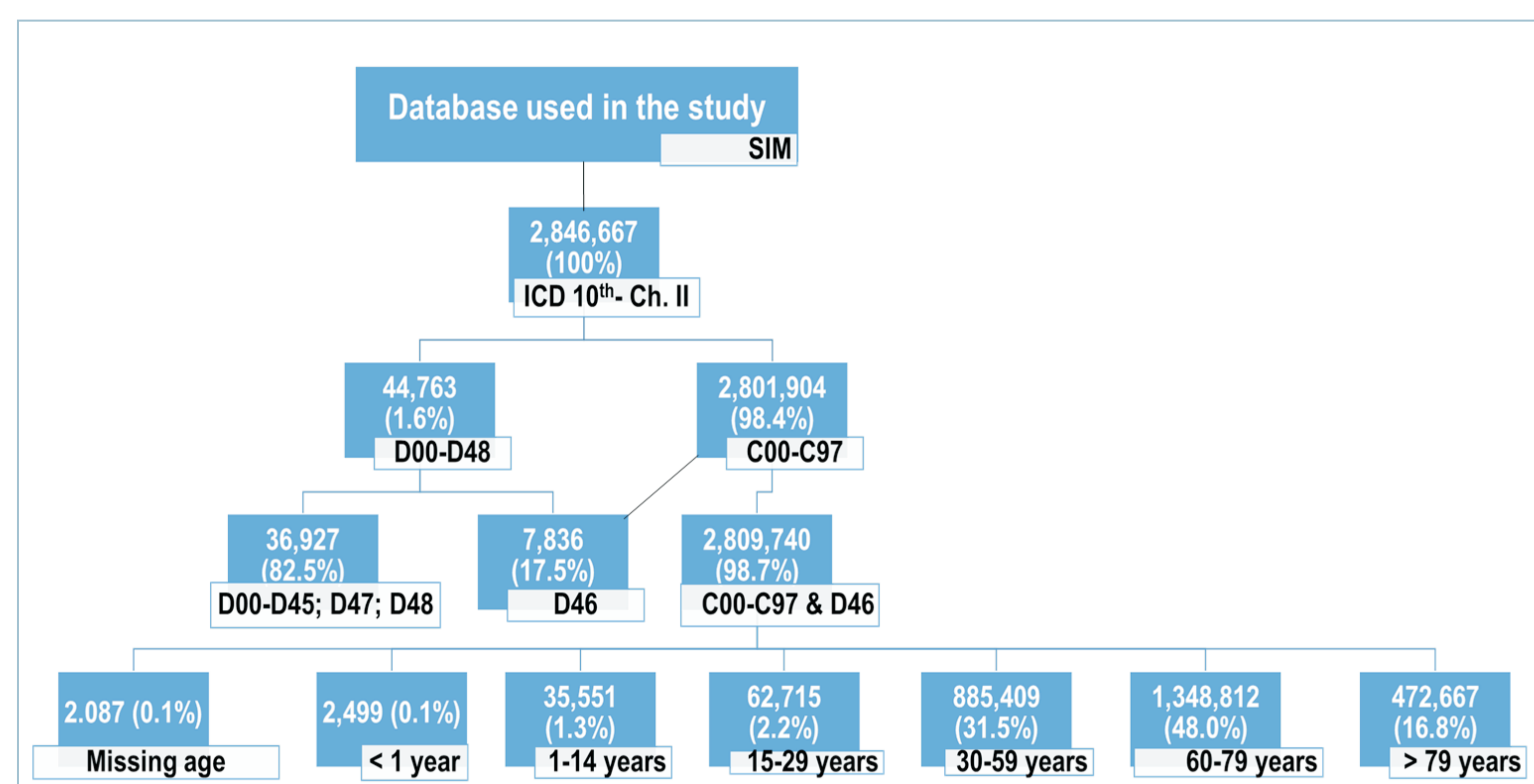

Figure 1: Flowchart of record's selection within the SIM database.

For this analysis 570 (1.5%) patients who died in other places (public way and others) and missing data related to place of death were excluded.

PRELIMINARY RESULTS

Data from children (0-14) were analyzed. This age group represents 1.4% (37,480) of study sample. The major PoD was HE (94.2%). (Table 1).

Table 1. Socio-demographic and death characteristics of children who died from cancer, according to place of death, Brazil, 1996-2014.

	all deaths	Health establishment	Home	p-value
	n(%)	n(%)	n(%)	
Overall	37,480	35,293	2,187	-
Gender				
Male	20,700 (55.2)	19,463 (55.1)	1,237 (56.6)	
Female	16,770 (44.7)	15,822 (44.8)	948 (43.3)	0.185
Death's age (years)				
<1	2,431 (6.5)	2,324 (6.6)	107 (4.9)	
1--4	11,254 (30.0)	10,706 (30.3)	548 (25.0)	
5--9	11,802 (31.4)	11,012 (31.2)	790 (36.1)	
10--14	11,993 (31.9)	11,251 (31.8)	742 (33.9)	<0.001
Geographic region (residence)				
North	3,381 (9.0)	3,155 (8.9)	226 (10.3)	
Northeast	10,488 (27.9)	9,719 (27.5)	769 (35.1)	
Southeast	15,091 (40.2)	14,397 (40.7)	694 (31.7)	
South	5,515 (14.7)	5,225 (14.8)	290 (13.2)	
Midwest	3,005 (8.0)	2,797 (7.9)	208 (9.5)	<0.001
Metropolis residence				
no	27,385 (73.0)	25,730 (72.9)	1,655 (75.6)	
yes	10,095 (26.9)	9,563 (27.0)	532 (24.3)	0.005
Basic cause of death				
Hematological malignancies	15,658 (41.7)	15,179 (43.0)	479 (21.9)	
Solid tumors	21,822 (58.2)	20,114 (56.9)	1,708 (78.0)	<0.001

Males were more likely to die at home; comparing to infant (<1 year), those aged 5-9 and 10-14 years were more likely to die at home. Residence's geographic regions were associated with home death. Children living in non-capital cities had a higher chance to die at home. Children with solid tumors were 3-times more likely to die at home, compared to children with hematologic disease. (Table 2).

Table 2. Factors associated with home deaths vs. hospital deaths in children who died from cancer, Brazil, 1996-2014.

	Crude OR (95% CI)	Adjusted* OR (95% CI)
Male vs. Female	1.06 (0.97-1.15)	1.11 (1.02-1.22)
Death's age (years) (ref. <1)		
1--4	1.11 (0.89-1.37)	1.21 (0.98-1.50)
5--9	1.55 (1.26-1.91)	1.82 (1.48-2.24)
10--14	1.43 (1.16-1.76)	1.69 (1.37-2.09)
Geographic region (residence) (ref. SE)		
North	1.48 (1.27-1.73)	1.75 (1.50-2.05)
Northeast	1.64 (1.47-1.82)	1.70 (1.52-1.89)
South	1.15 (1.00-1.32)	1.11 (0.96-1.28)
Midwest	1.54 (1.31-1.81)	1.62 (1.37-1.90)
Non-capital cities (residence)	1.15 (1.04-1.27)	1.23 (1.10-1.36)
Solid tumors vs. hematological	2.69 (2.42-2.98)	2.86 (2.57-3.17)

SE = Southeast; * Adjustments were made by all other variables

CONCLUSIONS AND PERSPECTIVES

All variables were independently associated with PoD. The complete dataset will be analyzed, and correlation with socioeconomics indicators will be done.

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