

# Pain and Hospitalization in Palliative Care

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*Dor e Internação Hospitalar em Cuidados Paliativos*

*Dolor y Hospitalización en Cuidados Paliativos*

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## ABSTRACT

**Introduction:** Pain is one of the most prevalent symptoms among patients in palliative care (PC), especially in advanced cancer, causing harmful impacts on quality of life. **Objective:** To assess the time required for pain control and its influence on the length of stay of patients in PC. **Method:** *Post hoc* analysis of the profile of hospitalization in a public oncology palliative care hospital in Rio de Janeiro was carried out between September and November 2016. Hospitalizations were followed longitudinally by reviewing medical charts with daily collection of the Numerical Rating Scale (NRS). Pain was considered controlled when NRS was zero. Among those hospitalized with uncontrolled pain, the time needed to control the symptom was calculated. **Results:** There were 429 hospitalization episodes with the presence of the pain symptom (controlled or not). The length of hospital stay was longer in hospitalizations with the pain symptom present (8.2 days versus 6.3 days without pain). Pain was not controlled on admission in 33% of the episodes. The mean time for pain control was 2.1 days. Both pain without control when hospitalized and delay in more than 24 hours to control it were associated with longer mean hospital stay: 7.9; 9.5; 8.7 and 11.2 days respectively. **Conclusion:** The findings confirm the high prevalence of pain among patients in oncologic PC, its impact on motivating and prolonging a hospital stay, and the importance of the action of a specialized team. **Key words:** Palliative Care; Pain Management; Cancer Pain; Hospitalização.

## RESUMO

**Introdução:** A dor é um dos sintomas mais prevalentes entre pacientes em cuidado paliativo (CP), especialmente no câncer avançado, gerando impactos nocivos na qualidade de vida. **Objetivo:** Avaliar o tempo necessário para o controle da dor e sua influência no tempo de internação de pacientes em CP. **Método:** Trata-se de uma análise *post hoc* do estudo de perfil da internação hospitalar em um hospital público de cuidado paliativo oncológico no Rio de Janeiro, entre setembro e novembro de 2016. As internações foram acompanhadas longitudinalmente por revisão de prontuário com coleta diária da Escala Verbal Numérica (EVN). A dor foi considerada controlada quando a EVN era zero. Entre aqueles que internaram com dor não controlada, foi calculado o tempo necessário para controle do sintoma. **Resultados:** Ocorreram 429 episódios de internações com a presença do sintoma dor (controlada ou não). A duração da internação foi maior nas internações com o sintoma dor presente (8,2 dias contra 6,3 dias sem dor). A dor não estava controlada na admissão em 33% dos episódios. O tempo médio para o controle da dor foi 2,1 dias. Tanto a dor sem controle ao internar quanto a demora em mais de 24 horas para o seu controle estavam associadas ao tempo médio de internação mais prolongado: 7,9; 9,5; 8,7 e 11,2 dias respectivamente. **Conclusão:** Os achados ratificam a alta prevalência da dor entre os pacientes em CP oncológico, seu impacto em motivar e prolongar uma internação hospitalar, e a importância da ação de uma equipe especializada. **Palavras-chave:** Cuidados Paliativos; Manejo da Dor; Dor do Câncer; Hospitalização.

## RESUMEN

**Introducción:** El dolor es uno de síntomas más frecuentes entre pacientes en cuidado paliativo (CP), especialmente en cáncer avanzado, que causa efectos nocivos en la calidad de vida. **Objetivo:** Evaluar el tiempo requerido para control del dolor y su influencia en la duración de estadía de pacientes en CP. **Método:** Se realizó un análisis *post hoc* del estudio de perfil de hospitalización en hospital público de cuidados paliativos de oncología en Río de Janeiro, entre septiembre y noviembre de 2016. Hospitalizaciones fueron seguidas longitudinalmente mediante revisión de registros médicos con recopilación diaria de Escala Numérica Verbal (ENV). El dolor se consideró controlado cuando ENV era cero. Entre los hospitalizados con dolor no controlado, se calculó el tiempo necesario para controlar el síntoma. **Resultados:** Hubo 429 episodios de hospitalización con presencia del síntoma de dolor (controlado o no). Duración de estancia hospitalaria fue mayor en hospitalizaciones con síntoma de dolor presente (8,2 días versus 6,3 días sin dolor). Dolor no se controló al ingreso en el 33% de los episodios. El tiempo promedio para control del dolor fue de 2,1 días. Tanto el dolor sin control cuando estuvo hospitalizado como el retraso en más de 24 horas para controlarlo se asociaron con estadía hospitalaria promedio más larga: 7,9; 9,5; 8,7 y 11,2 días respectivamente. **Conclusión:** Los hallazgos confirman alta prevalencia de dolor en pacientes con CP del cáncer, su impacto en motivación y prolongación de estadía en hospital y la importancia de la acción de un equipo especializado. **Palabras clave:** Cuidados Paliativos; Manejo del Dolor; Dolor en Cáncer; Hospitalización.

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## INTRODUCTION

One of the goals of palliative care (PC), whose focus is the quality of life, is to be out of the hospital environment. The cause of 20% of the hospitalizations in oncologic PC, the symptom pain needs to be watched carefully<sup>1</sup>.

Pain can be defined as a sensory and emotional experience associated with actual or potential tissue damage<sup>2</sup>. It is unique and individual modified by previous experiences, its importance made it to be considered as the fifth vital signal<sup>3</sup>.

For the oncologic patient, pain can arise from the tumor itself as a consequence of its treatment (surgery or antineoplastic therapy) or by causes unrelated to cancer. The prevalence reaches 80% with advanced disease<sup>4</sup>. Although analgesic treatment is available for 70% or 90% of the patients, it is inappropriate for 40% to 50% of the cases<sup>5-7</sup>.

Based in a study of the profile of hospitalized patients, medications utilized and pain control<sup>8</sup>, a complementary analysis of the association of the symptom pain with the length of hospitalization was performed. The objective of the study was to evaluate the time necessary to control the symptom and its influence in the entire period of hospitalization of oncologic patients in PC.

## METHOD

*Post hoc* analysis of the study of the profile of the patients and drug treatment in a public hospital of oncologic palliative care in the city of Rio de Janeiro<sup>8</sup>. Longitudinal, observational, retrospective study where all the hospitalizations were followed-up with daily review of the chart between September 1 and November 30, 2016, with collection of the Verbal Numerical Scale (vNRS)<sup>9-11</sup> at admission and routine medical evolution. The four physicians of the routine were professionals of the oncologic palliative care clinical staff for at least six years and were previously trained to use the duty schedule.

Patients who were in use of any analgesic, either regular (dipyrone, paracetamol), or opioid even with vNRS=0, were classified as carriers of the symptom pain (symptom pain present). Register as “without pain” in the chart was determined as vNRS=0. Pain was considered controlled when vNRS=0. The use of opioid exclusively for dyspnea or analgesic as antipyretic was characterized as “symptom of pain absent”.

Among those who were hospitalized with uncontrolled pain (vNRS>0), the required time (in days) to control the symptom (vNRS=0) was calculated.

For analysis, the basic unit considered was hospitalization – called **episode** – and not the patient.

The descriptive analysis of the variables collected with determination of the frequencies, measures of central tendency and dispersion was conducted. The measures of association were calculated, utilizing the chi-square tests for categorical variables and Mann-Whitney for continuous variables. All the numerical variables collected have non-normal distribution according to the Shapiro-Wilk test. The statistical software utilized was R.

The Institutional Review Board of the National Cancer Institute José Alencar Gomes da Silva (INCA) and of “Hospital Universitário Pedro Ernesto” of “Universidade do Estado do Rio de Janeiro” (UERJ), report number 1.630.518 dated June 11, 2016 (CAAE: 54919016.4.0000.5274) approved the study.

## RESULTS

Between September 1 and November 30, 2016, 399 patients were admitted at the unit, with 461 episodes of hospitalizations<sup>8</sup>. Females were predominant between 17 and 94 years of age, median and mean of 62 years (+/-14.5). The most frequent sites of the primary tumors were breast (15%), cervix (13.3%) and lung (11.3%). Table 1 shows other data about the study population. The mean time of hospitalization was 8.2 days (+/-7.1). In the 429 episodes (93%) with symptoms “present pain”, the hospitalization lasted 8.4 days in average (+/-7.3) and in 32 (7%) with “symptom pain absent”, 6.3 days (+/-4.4).

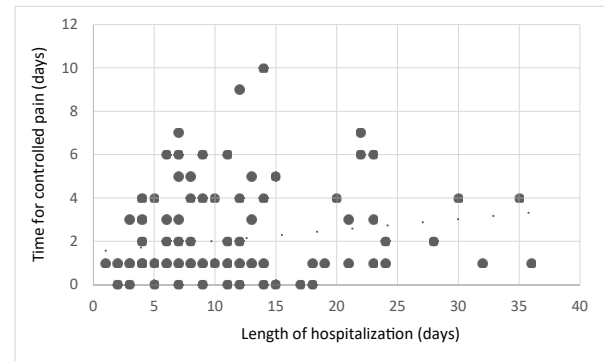
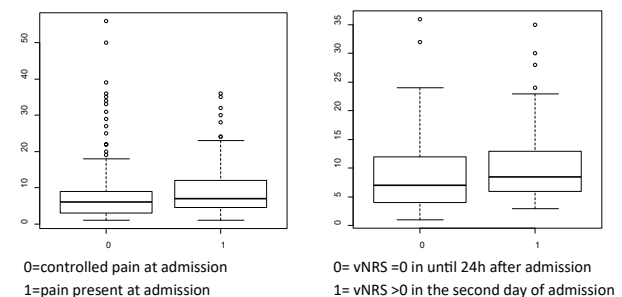
Considering the evaluation of the pain at the admission, pain was not controlled (vNRS >0) in 144 episodes (33.6%). Of this total, in 90 episodes (62.5%), pain was reported as controlled in until 24 hours after admission. The mean time to control the pain was 2.1 days (+/-1.9; CI 95% 1.7-2.4), ranging from zero to 10 days, median of one day (Graph 1). For only one patient, pain failed to be controlled during the hospitalization, evolving to death after six days at the hospital with report of daily pain.

Both the presence of pain at admission and the delay to control (more than 24 hours) were associated with more time of hospitalization. The 285 patients who reported vNRS =0 at admission remained hospitalized for 7.9 days in average (+/-7.3; CI95% 7.0-8.7) while among the 144 with vNRS >0, the length of hospitalization was in average 9.5 days (+/-7.2; CI95% 8.3-10.8; p-value<0.00). Those who reported vNRS=0 in until 24 hours (early control) remained hospitalized for 8.7 days in average (+/-6.5; CI95% 7.4-10.1), as the 54 who needed more than 24 hours to reach vNRS =0 (late control) were hospitalized for 11.2 days in average (+/-7.4; CI95% 9.2-13.3; p-value<0.00). Graphs 1 and 2 show these observations.

**Table 1.** Characterization of patients admitted at the oncologic palliative care unit between September 1 and November 11, 2016

	n	%
<b>Sex</b>		
Male	146	36.6
Female	253	63.4
<b>Age (years)</b>		
Mean	62 (variation 17-94; +/-14.5)	
<b>Primary tumor</b>		
Gynecologic system	90	22.6
Digestive system	88	22.1
Breast	60	15.0
Lung	45	11.3
Head and neck	43	10.8
Skin	19	4.8
Urinary system	19	4.8
Sarcoma	13	3.3
Other	22	5.5
<b>Sites of progression of the disease</b>		
Local	293	73.4
Lymph node	188	47.1
Lung	128	32.1
Bone	94	23.6
Liver	84	21.1
Peritoneum	68	17.0
Central nervous system	60	15.0
Pleura	49	12.3
Other	19	5.0
<b>Oncologic treatment</b>		
Yes	343	86.0
No	56	14.0
<b>Presence of pain at admission</b>		
Yes	144	36.1
No	255	63.9
<b>Outcome of the hospitalization</b>		
Discharge	128	32.1
Death	271	67.9

The use of opioid prior to the admission has also influenced the time to control the pain during the episode. In the episodes with patients without prior use of opioid, pain was controlled faster with mean of 1.6 days (+/-1.7; CI95% 0.9-2.3), compared to 2.1 days in average (+/-1.9;

**Graph 1.** Dispersion comparing the total time of admission and time required in days to reach vNRS=0 among the patients who were hospitalized with the symptom "uncontrolled pain" (n=144) at the oncologic palliative care unit**Graph 2.** Time box diagram of hospitalization according to symptom "controlled pain" at admission and after 24 hours of admission to the exclusive oncologic palliative care unit

CI95% 1.7-2.4; p-value 0.13) with prior use of opioid. Among the 90 patients who controlled the pain earlier, 77.8% used opioid prior to admission, while 92.6% among the 54 with late control utilized opioid at home (p-value<0.00).

Five episodes where pain was not reported were excluded. These admissions lasted one or two days.

## DISCUSSION

The study was conducted in an oncologic palliative care unit and ratifying the literature, it was observed high prevalence of the symptom pain in patients with advanced cancer. However, in only 35.2% of the episodes, pain was not controlled at the moment of the hospitalization.

The mean time to control the pain was two days, but most of the episodes of the patients achieved control in until 24 hours. Among the patients who reported pain (vNRS>0) at admission, only 2% failed to control pain until the seventh day of hospitalization. The occasional return of pain was not analyzed. Lima et al.<sup>12</sup> noticed 70% of pain without control at admission and 15% with pain in the eighth day of hospitalization. In a Korean specialized palliative care center, 17% persisted without control of

the pain in the seventh day of hospitalization<sup>13</sup>. In a study conducted in Thailand, the mean time of control was seven days, having vNRS<5 in 42% of the patients in the seventh day<sup>14</sup>. In this last study, it stands out that the mean vNRS in the last day of hospitalization was 3.7, higher than the mean observed in the seventh day of hospitalization (2.3).

Two methodological differences among the present study and the other studies mentioned above need to be highlighted. The first is the value of the vNRS where pain was defined as controlled: zero in this study, <4<sup>12</sup>, <5<sup>13</sup>. The second difference is that, in the present study, to the description of “absence of complaint of pain” it was attributed vNRS=0 even without accurate quantification. In the other studies, these patients were excluded.

Other authors investigated the time to control pain after the intervention of the specialized PC team with good results. Lefkowitz et al.<sup>15</sup> noticed reduction of 50% of the cases of moderate to intense pain in the following day of the PC team intervention; Kelly et al.<sup>16</sup> described pain at comfortable level in until 48 hours of hospitalization in 58% of the patients; Tavares et al.<sup>17</sup> detected reduction of the prevalence of the symptom pain from 37% to 15% 72 horas after the intervention.

Delgado-Guay et al.<sup>18</sup> conducted the only localized study where the presence of the symptom-controlled pain was with vNRS=0. In the first evaluation, 91% of the patients reported vNRS>0 for pain. After 24 to 48 hours, a reduction of at least two points in the initial vNRS was observed in 53% of the cases.

In a context of PC, advanced disease, pain, and hospitalization contribute negatively for the quality of life. Considering a short survival of few weeks, any reduction of the hospitalization time is desired.

The main limitation of this work was the collection of data from the charts and not directly with the patient. Complementary studies with direct interview with the patient with differences of the type of pain must be encouraged.

## CONCLUSION

The findings ratify the high prevalence of pain among patients in oncologic PC, its negative impact in the quality of life because of the hospitalization and length of stay and the importance of an expert team.

## CONTRIBUTIONS

The authors participated of all the phases of the manuscript and approved the final version to be published.

## DECLARATION OF CONFLICT OF INTERESTS

There is no conflict of interests to declare.

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