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Nursing assessment of pain in cancer patients: a pilot study

Valutazione infermieristica del dolore neoplastico: studio pilota

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Summary

Literature confirms the lack of any consistent approach by nurses to the assessment of cancer pain. This study represents an initial and limited experience on the application of pain documentation and pain assessment tools to improve cancer pain management. The study was based on research conducted by Faries *et al.* (1991) with modifications especially regarding the way of analyzing results. A group of 15 patients, all stratified by age, gender and type of pain, were randomly divided into a control and a treatment group. Patients in the control group had traditional nursing treatment whereas the treatment group was monitored by pain assessment tools: Pain Assessment Tool (PAT), Pain Flow Sheet (PFS) and the Numeric Rating Scale (NRS). A simple evaluation method based on the Pearson correlation coefficient was used to reveal the worsening or lightening of patient pain. Findings do not present any statistical value but support the usefulness of the correlation coefficient as an indicator of patient pain management throughout hospital stays and underline the importance of a rigorous scientific method of monitoring cancer-related pain by nurses. Eur. J. Oncol., 5 (1), 49-52, 2000

Riassunto

Esiste un'ampia letteratura scientifica circa l'approccio infermieristico al paziente affetto da dolore cronico di natura neoplastica. Questo studio rappresenta un'esperienza iniziale e limitata come casistica, finalizzata a valutare un nuovo approccio nella valutazione e nel monitoraggio infermieristico del dolore oncologico, allo scopo di migliorare il trattamento di tale sintomo. Lo studio, prendendo spunto da una ricerca di Faries *et al.* (1991), utilizza un nuovo metodo di analisi e monitoraggio del dolore su un determinato campione di pazienti. Quindici pazienti sono stati stratificati in base all'età, sesso e tipo di dolore in un gruppo di controllo ed in un gruppo di sperimentazione. Il dolore dei pazienti del gruppo di controllo è stato monitorizzato secondo metodiche tradizionali mentre il dolore dei pazienti del gruppo sperimentale è stato monitorizzato utilizzando il Pain Assessment Tool (PAT), il Pain Flow Sheet (PFS) e la Numeric Rating Scale (NRS). Un semplice metodo di valutazione basato sul coefficiente di correlazione secondo Pearson è stato utilizzato allo scopo di individuare il peggior dolore sperimentato e le variazioni di intensità nel periodo di ospedalizzazione dei pazienti. I risultati, malgrado non posseggano valore statistico data la limitata casistica presentata, da una parte suggeriscono la possibilità di utilizzare tale coefficiente di correlazione e dall'altra sottolineano la necessità di un'applicazione scientificamente rigorosa da parte delle infermiere degli strumenti di valutazione del dolore oncologico. Eur. J. Oncol., 5 (1), 49-52, 2000

Key words: cancer-related pain, nursing assessment

Parole chiave: dolore oncologico, monitoraggio infermieristico

Introduction

Cancer pain afflicts almost nine million people every year. The evidence is strong that undertreatment of cancer pain is widespread, but there is little real understanding of why this problem exists or what should be done to correct it (Donovan and Dillon, 1987). On the one hand it is clear how pain is a very complex and subjective experience and that accurate subjective and objective assessment of pain in another person is difficult (Jacox, 1979); on the other hand, it is one of the nurse's duties and responsibilities to find the best way to recognize and assess pain in all its affective, sensory, psychological and behavioural components (Ahles, Blanchard and Ruckeschel, 1983).

The literature confirms the lack of any consistent approach by nurses to assess cancer pain (Anderson, 1982).

As Camp (1988), McGuire (1989) and Benoniel (1974) suggest in their studies, nurses' difficulty in pain management is due to cultural, organizational, ethical and relational factors such as: a) the lack of systematic and effective pain assessment; b) the lack of specific documentation on pain collected by nurses; c) insufficient knowledge about the variety of drugs, treatments and other procedures that can be used to alleviate pain; d) too little organization of time and resources; e) insufficient communication among the teams.

It has subsequently come to be supposed that by inserting specific pain documentation for nurses' use, their efficiency in pain management will improve.

The purpose of this pilot study was to examine the impact of systematic pain documentation and assessment tools on chronic cancer pain management. The inspiration for this study was research conducted by Faries *et al.* (1991), modified especially in the way of analyzing results.

Methodology

A group of 15 patients suffering from chronic cancer pain was used in this study. Following the recommendations of Faries *et al.* (1991), patients were randomly divided into a control and a treatment group. Patients in each group were stratified by age, gender, kind of pain. Patients in the control group had traditionally treatment by nurses. The treatment group was undertaken by a small group of nurses who had previously received a brief explanation as to the use of pain assessment tools.

Instruments and procedures

Instruments and procedures were as described by Faries *et al.* (1991). Briefly, three tools were used in this study: a Pain Assessment Tool (PAT) (Meinhart and Mc Caffery, 1983), Pain Flow Sheet (PFS) (Mc Millan *et al.*, 1988) and a Numeric Rating Scale (NRS). The PAT was used for initial pain assessment to estimate the intensity, location and patterns of pain and its influence on the quality of life. The PFS was used by nurses at least once a shift throughout the patient's stay in hospital to assess pain and plan treatment systematically. It was also the nurses' responsibility to show the PFS and explain the patient's condition to the physician whenever his/her intervention was needed (e.g. adjusting therapy). Only the treatment group was monitored by PAT and PFS.

The NRS was used in both patient groups to measure pain intensity. Patients were asked to give a number from 0 to 10 (indicating 0 for no pain, and 10 for intense pain) to describe the pain at its worst and as an average of the last 12 hours. Compared to the Faries *et al.* article (NRS used every 24 hours), this study aimed to distinguish daytime from nighttime pain intensity. The NRS was used to assess the failure or success of the PAT and PFS on the treatment group vs the pain management in control group.

Data analysis

The statistical method used in this study was different from the Kruskal Wallis method used by Faries *et al.* (1991). This study set out not only to see if patients had their pain relieved by improving the nurses' efficiency in assessing and managing their pain, but also to analyze the variations and peaks in pain during the whole period of hospital stay. The study accordingly used the linear regression statistical method, confirming itself to Pearson's "correlation coefficient" (*r*). If the absolute value of "*r*" was near 1, it meant that there was a clear linear tendency in the evolution of pain. A minus sign indicated decrease of pain. If the value was near 0, it meant that there were high variations in pain during the stay.

Results

Table 1 affords a guide to analysis of results. The sign (minus or plus) and the "*r*" value were the key-values that were used to explain our data. As shown in Table 1, we decided only to consider values of "*r*" above 0.4, since values below 0.4 do not give a clear indication of a trend. Fig. 1 shows a case with "*r*" = -0.81; fig. 2 shows a case with "*r*" = +0.18. We connected the measurement points by a Spline curve, while also plotting the linear regression curve. In fig. 1 the regression line has a meaning because the "*r*"

Table 1 - Guide

Sign of " <i>r</i> "	" <i>r</i> " value	Meaning
+	>0.4	Worsening of pain
-	>0.4	Decrease of pain
+/-	≤0.4	Extreme variability

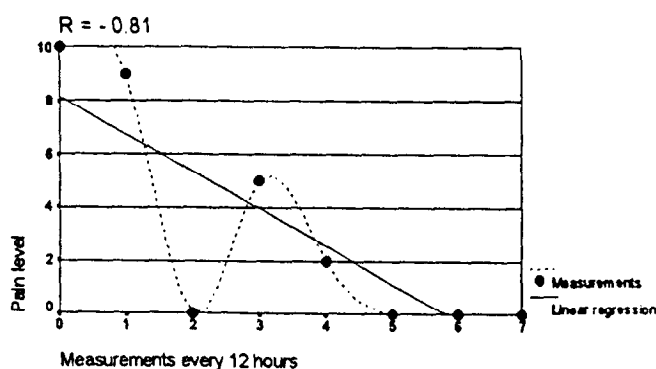


Fig. 1 - Case with *r* = -0.81.

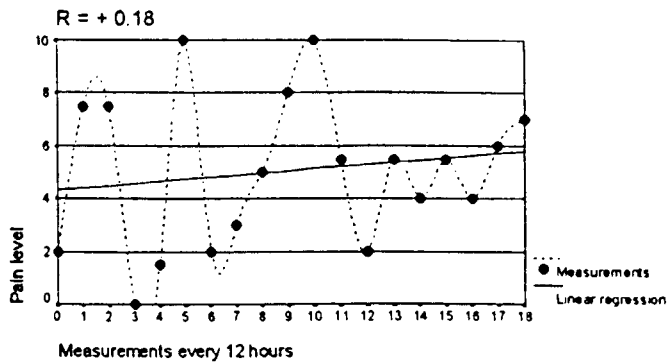


Fig. 2 - Case with $r = +0.18$.

value is great enough to show a correlation and a tendency. In fig. 2, the regression line seems to give us an indication of a slight worsening tendency but, as the “r” value is too small, we clearly see that the measurements points are too much scattered to give us any insight on a tendency.

If we now examine Table 2 (worst pain), we can see that in the treatment group there are only 4 meaningful values of “r” (according to Table 1), three of them indicating pain relief and one indicating worsening of pain, while in the control group we have 5 meaningful values of “r”, all indicating relief in pain.

We can achieve similar information by analysing data from Table 3 (average pain).

The results suggest that the control group patients had a much more significant decrease in pain than the treatment group, unlike what was expected.

To investigate this finding, day-one pain intensities were compared in treatment and control groups. It was found that the worst and the average pain intensities on day one of the treatment group were significantly higher than those of the control group (worst,

Table 2 - Worst pain

Type of pain	Initial pain	Final pain	Correlation coefficient
<i>Treatment group</i>			
Visceral	9	8	+ 0.53 ^(a)
Visceral	10	0	- 0.81 ^(a)
Visceral	2	7	+ 0.18
Bone	5	4	- 0.53 ^(a)
Bone	8	3	- 0.58 ^(a)
Bone	8	6	+ 0.02
Bone	9	9	+ 0.29
Bone	4	4	+ 0.22
	Mean: 6.8	Mean: 5.1	
<i>Control group</i>			
Bone	3	2	- 0.19
Bone	10	5	- 0.41 ^(a)
Bone	5	0	- 0.58 ^(a)
Bone	7	5	- 0.24
Bone	6	0	- 0.76 ^(a)
Neurologic	3	0	- 0.90 ^(a)
Visceral	5	0	- 0.48 ^(a)
	Mean: 5.5	Mean: 1.7	

^(a) Meaningful value

Table 3 - Average pain

Type of pain	Initial pain	Final pain	Correlation coefficient
<i>Treatment group</i>			
Visceral	7.5	7	+ 0.52 ^(a)
Visceral	10	0	- 0.85 ^(a)
Visceral	2	5	+ 0.04
Bone	3.5	3	- 0.39
Bone	4.5	2	- 0.14
Bone	5	4	- 0.05
Bone	2	7.5	+ 0.85 ^(a)
Bone	2	2	+ 0.48 ^(a)
	Mean: 4.6	Mean: 3.8	
<i>Control group</i>			
Bone	1.5	1	- 0.15
Bone	3.5	3	- 0.16
Bone	2.5	0	- 0.68 ^(a)
Bone	5	4.5	- 0.08
Bone	5	0	- 0.89 ^(a)
Neurologic	3	0	- 0.79 ^(a)
Visceral	5	0	- 0.57 ^(a)
	Mean: 3.6	Mean: 1.21	

^(a) Meaningful value

6.8 to 5.5; average, 4.6 to 3.6). Moreover, in analyzing the PFS records of each single patient, we realized that in some instances the worsening of pain coincided with a modification of the drug therapy used in pain treatment or with a variation in the modality of drug administration (e.g. intramuscular versus endovenous). In some other instances, the worsening was related to a sudden interruption of the administration of analgesics due to the beginning of a chemotherapy cycle.

Finally it emerged that for unexpected logistic reasons the nurses who were trained to assist the patients of the treatment group, happened also to be assisting the control group of patients, who were probably treated like the treatment group.

Further information was acquired by considering the variations in pain during the day and during the night. As shown in Table 4, pain varied greatly in intensity. Patients had much more visible pain relief during the day than at night, when more than one patient complained that their pain worsened.

On the one hand this confirmed that intensive nursing attention by day was useful in pain management. On the other hand this result reminds us that during the nighttime hours, the patient’s loneliness affords no distraction from physical pain and suffering and generates a common feeling of powerlessness.

Table 4 - Day/night variation of pain

	Day	Night
	+ 0.25	+ 0.56 ^(a)
	- 0.99 ^(a)	- 0.72 ^(a)
	+ 0.01	+ 0.17
	- 0.54 ^(a)	- 0.55 ^(a)
	- 0.83 ^(a)	- 0.40 ^(a)
	- 0.14	+ 0.15
	+ 0.38	Constant
	- 0.86 ^(a)	+ 1.00 ^(a)

^(a) Meaningful value

Other findings emerged from analysis of PAT and PFS. In particular, stratification of the sample by type of pain (mostly bone and visceral) showed major differences in the possibility of therapeutic intervention. As an example, patients with bone-related pain, as opposed to those with visceral-related pain, had more evident beneficial effects from non-pharmacological treatment proposed by their nurses, such as repositioning or wearing a corset.

Discussion

This study represents an initial and limited experience on the application of pain documentation and pain assessment tools to improve chronic cancer pain management.

In comparing two small groups of patients, we realize that we are trying to compare situations that are very different from each other in terms of type of pain, possibilities of treatment, stage of cancer. Thus, while approving the benefits of the method in each single patient, it is clear that if we want to obtain more statistically significant results, very accurate stratification (most of all by initial pain intensity) of the patients is necessary. Furthermore, one considerable limitation appears to be the unexpected fact that nurses who were supposed to be assisting only the treatment group of patients were found to be treating the control group of patients with the same attentions. These were the reasons why this study was temporarily interrupted.

Although the study by Faries *et al.* (1991) obtained more statistically significant results from its sample size, the findings in our present study were interesting.

Besides the already mentioned benefits to most patients in both the treatment and the control group, we noted various positive effects that the introduction of pain specific documentation had on the nurses: a) nurses were sensitized to a more attentive and comprehensive attitude toward the patient's overall experience of cancer pain; b) nurses had a chance to know and use specific pain documentation and assessment tools and understand their importance and necessity in pain management; c) nurses organized their time to devote attention specifically to pain just as much as to other primary nursing activities; d) communication was improved among nurses, and between nurses and physicians.

To be able to evaluate the real effects on the patient's pain intensity we are proposing a simple statistical indicator as shown above. We are aware that more complex statistical methods can be applied to data collected to achieve a similar result.

Our suggestion is for the sake of simplicity to keep a degree of adaptability to different scenarios. For example the 0.4 "r" value and the 2 difference value are indicators that may be changed according to experience. The complexity of pain assessment requires a flexible evaluation method.

Recommendations for future research

In conclusion, we recommend the use of the PAT, PFS and NRS as proposed by Faries *et al.* (1991) and introduction in the clinic of the correlation coefficient for a continuous view of patient pain management.

References

- Ahles T.A., Blanchard E.B., and Ruckeschel J.C.: The multidimensional nature of cancer-related pain. *Pain*, **17**, 277-288, 1983.
- Anderson A.G.: Nursing management of the cancer patient in pain: a review of the literature. *Cancer Nurs.*, **5**, 33-44, 1982.
- Benoniel J.Q.: The patient in pain: new concepts. Proceedings of the National Conference on Cancer Nursing (1973), 70-78. American Cancer Society, New York, 1974.
- Camp L.D.: A comparison of nurses' recorded assessments of pain with perceptions of pain as described by cancer patients. *Cancer Nurs.*, **11** (4), 237-243, 1988.
- Donovan M.I., and Dillon P.: Incidence and characteristics of pain in a sample of hospitalized cancer patients. *Cancer Nurs.*, **10** (2), 85-92, 1987.
- Faries *et al.*: Systematic pain records and their impact on pain control. *Cancer Nurs.*, **14**, 6, 1991.
- Jacox A.K.: Assessing pain. *Am. J. Nurs.*, **79**, 895-900, 1979.
- Mc Guire D.B.: Progress in the control of cancer pain. *Nurs. Clin. North Am.* (Italian Edition), **10** (1), 181-193, 1989.
- Mc Millan S.C., Williams F.A., Chatfield R., *et al.*: A validity and reliability study of two tools for assessing and managing pain. *Oncol. Nurs. Forum*, **15**, 735-741, 1988.
- Meinhart N.T., and Mc Caffery M.: Pain: a nursing approach to assessment and analysis. Appleton-Century-Croft, Norwalk, CT, 1983.