Establishing a Structured Cancer Pain Control Program in a Tertiary Government Hospital

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Abstract:

Introduction: Structured pain control programs are needed to alleviate the pain of patients with cancer. **Objective:** To describe how a structured cancer pain control program was established and institutionalized in the Department of Surgery of Ospital ng Maynila Medical Center, a tertiary city government hospital. **Methods:** An action research methodology was utilized. **Results:** Before May, 2003, there was no structured cancer pain control program. Cognizant of its importance, Ospital ng Maynila Medical Center Surgery formulated one followed by training of surgical and parasurgical staff; provision of S2 license and yellow prescription pads to surgical residents; insurance of availability of analgesics, particularly morphine, in the hospital pharmacy; and formulation of an oversight system. A total of 55 cancer patients were treated from May to August, 2003. The set goal of 90 per cent in adequacy of pain control using a pain score of 3 or less prior to discharge or death was achieved. **Conclusion:** The authors hope that this report will serve as a model for other hospital and clinical departments dealing with cancer patients to follow so as to accelerate the achievement of objective of the cancer pain control program of the Department of Health in the country.

Keywords: **cancer pain, program**

Introduction

Over four million people worldwide experience cancer pain on any given day and most receive inadequate treatment (1). Inadequate management of cancer related pain has resulted primarily from attitudinal barriers and a lack of knowledge about clinical assessment, the administration of analgesics, and therapeutic interventions (2). According to the World Health Organization committee on cancer pain, 90 to 95 per cent of all cancer pain can be well controlled using a special set of guidelines (3).

In the Philippines, it was estimated in1988 that at least 200,000 Filipinos suffer from cancer pain every year (4). In a 2002 workshop report of The Cancer Pain Control Study Group under the auspices of the Department of Health entitled “For an organized implementation of the DOH-PCCP Cancer Pain Control Program in the Philippines,” the consensus is that “with high probability, many patients with cancer pain, are not being given the appropriate treatment, and hence suffer unnecessarily” (5). This consensus was based on findings derived from various studies on cancer pain control in the Philippines. Among the major causes of inadequate cancer pain control in the Philippines were lack of education in cancer pain therapy among health professionals and problem with implementation of the strategies of the program.

In 2003, the Department of Surgery of Ospital ng Maynila Medical Center has taken cognizance of the cancer pain problem in the Philippines and in its department and hospital. It has decided to solve the problem existing in its home ground as well as to contribute to the solution of the cancer pain problem in the Philippines by setting an example and even a model for all departments of surgery in the country as well as clinical departments to follow.

Thus, in May, 2003, the Department started a formal cancer pain control program. This paper describes how the cancer pain control program was established in the Department of Surgery and how it was being implemented up to August 2003.

Methods

An action research methodology was utilized consisting of the following steps: situational analysis, identification of problems, formulation of solutions followed by implementation and evaluation of results.

The records of Ospital ng Maynila Medical Center Surgery that pertained to its cancer pain control program were retrieved, reviewed, and analyzed focusing on the processes of establishing and evaluating a cancer pain control program in a department of surgery.

Results

In April, 2003, a situational analysis of the cancer pain control program of the Department was made. The findings showed that prior to May, 2003, Ospital ng Maynila Medical Center, Department of Surgery had no structured cancer pain control program. No residents had yellow prescription pads for opioid prescription. The hospital pharmacy had no stocks of morphine because of absence of prescriptions from the physicians. There was no monitoring of cancer pain control in the Department.

The situational analysis was immediately followed by a formulation of a cancer pain control program of the Department containing the three basic elements of a program, namely, objective, strategies, and evaluation.

The objective of the program was stated as follows: At the end of the year 2003, at least 90 per cent of all admitted cancer patients in the Department of Surgery will have satisfactory control of their cancer pain.

The strategies consisted of the following:

1. Formulation of a structured cancer pain control program in the Department (Appendix 1).
2. Education of the surgical resident and parasurgical staff not only on the cancer pain control program but also on how to manage cancer pain and how to prescribe pharmacologic therapy, particularly, the opioids (Appendix 2).
3. Imposition of a requirement that all surgical residents should have an S2 license and yellow prescription pads (Appendix 3).
4. Assurance of availability of analgesic drugs, particularly, morphine, in the hospital pharmacy.

5. Formulation of a system for oversight (Appendix 4).

The ultimate evaluation parameter used was a pain score of 3 or less post treatment or at least 2 days prior to discharge or death.

All the strategies mentioned above were accomplished by the end of 2003.

From May to August, 2003, there were a total of 55 cancer patients admitted to the Department with the age ranging from 28 to 83, with a mean age of 50. Majority (60 per cent) were in the 5^{th} to 6^{th} decades of life. There were 11 (20 per cent) males and 44 (80 per cent) females. Majority were breast cancer cases 31/55 (56 per cent) followed by colorectal cancer 9/55 (16 per cent).

Table 1 shows the distribution of different causes of cancer pain. Twenty four (44 per cent) of the pain originated from the cancer itself while 31 (56 per cent) were secondary to an operative treatment (post-operative pain). Visceral pain was the most common type of pain caused by the cancer itself.

Table 2 shows the distribution of cancer diagnosis, stage, and range of pain score by stage and by type of cancer on admission prior to treatment (pretx). Majority of patients with early cancers (Stages I-III) had zero to mild pain while 10 out of 17 patients with stage IV cancer had severe pain.

Table 3 shows the distribution of cancer diagnosis, stage, and range of pain score by stage and by type of cancer post treatment (posttx) or 2 days prior to discharge. Post-treatment pain scores were zero to three in all patients except in one patient with stage IV Rectal cancer who died with pain score of four.

Table 4 shows the overall pretreatment and post-treatment distribution of pain scores for the months of May, June, July and August, 2003. Adequate pain control was

attained in almost all patients 53/55 (96 per cent) except for two patients. The post-treatment pain scoring results showed that the objective of the Department's cancer pain control program had been achieved as of August, 2003

Table 5 shows the frequency and outcome of yellow prescriptions or use of morphine tablets in cancer pain control by type and stage of cancer. The ten patients who were given morphine were all at advanced stage of the disease (Stage IV). Nine out of ten patients had adequate pain control prior to discharge or death. None was given to patients with early stages of cancer primarily because of low severity of pain.

Table 6 shows the frequency and outcome of non-morphine analgesic usage in cancer pain control by type and stage of cancer. Non-morphine usage included use of paracetamol, nonsteroidal anti-inflammatory drugs (NSAIDs), and tramadol. These non-morphine analgesics were primarily used for post operative pain management, 45 (82 per cent) were given these analgesics and all had adequate pain control prior to discharge.

Table 7 shows the results of control of postoperative pain for cancer patients undergoing operations. Due to marked variations in surgical approach in cancer treatment we limited our study to mastectomy and thyroidectomy. All the 28 patients had adequate pain control prior to discharge.

Table 8 shows the side effects and adverse reactions of pharmacologic therapy. The most common side effects and adverse reactions with opioid analgesics was constipation 10/10 (100 per cent), while that of NSAIDS was epigastric pain 5/36 (14 per cent).

Table 9 shows the mortality rate by type of cancer and treatment with cause of death. There were two operative and six non operative mortalities, with overall mortality rate of 14.5 per cent. The most common cause of death was multiple organ failure secondary to disseminated cancer. None were secondary to pain management.

Table 10 shows the morbidity rate by type of cancer and treatment. The overall morbidity rate was 5.5 per cent, all were operative morbidity. None were secondary to pain management.

Table 11 shows the problems encountered in the cancer pain control program from May to August, 2003 and the status of resolution.

Discussion

The emergence of organized activities by health professionals and institutions in response to the need for improved cancer pain management has taken many forms, which have included state cancer pain initiatives, hospital based pain services, government sponsored public health initiatives, and an articulation of roles and responsibilities by the oncology related professional associations (6). Like one of these efforts, a department of surgery can contribute much to the solution of the cancer pain problem in the Philippines because there are lots of such departments in the country and besides, majority of cancer cases are primarily handled by surgeons or put in another way, surgeons are the primary physicians of cancer patients since majority of cancers are solid tumors and primarily treated with operation.

The Ospital ng Maynila Medical Center, Department of Surgery started from scratch with no cancer pain control program to talk about, with no residents having an S2 license and yellow prescription pad, and with no morphine in the hospital pharmacy.

Armed with a will and a mission, in a span of 4 months, the Department has come out with a structured cancer pain control program, with 2 residents having an S2 license and yellow prescription pads and having acquired the competency of cancer pain control, with the hospital pharmacy having adequate supply of opioid analgesics, and more than 90 per cent of the admitted patients had adequate cancer pain control.

Though the five strategies formulated were relatively straightforward, the successful implementation required committed, focused, innovative, and perseverant leaders and followers.

The formulation of the cancer pain control program was facilitated by the adoption and innovative modifications of the Cancer Pain Control Program of the Department of Health (DOH) so as to make it suitable to the Department of Surgery's setting which included its usual clients and existing activities as well as to make it more structured and explicit and patient empowerment (Appendix 1).

The education of the surgical and parasurgical staff was facilitated by the presence of curriculum that is comprehensive in the sense that it included all treatment modalities for cancer pain control and structured in the sense that it included a formal curriculum with honest-to-goodness implementation (Appendix 2). At this writing, the training is continuously ongoing.

The imposition of a requirement that all surgical residents should have an S2 license and yellow prescription pads was facilitated by the subsidy from the Department's funds (Appendix 3). For practical and financial reasons it was reduced to at least two (2) residents.

The insurance of availability of analgesics in the hospital pharmacy was facilitated by the support and cooperation of the hospital director and hospital pharmacist.

Lastly, the formulation and implementation of an oversight system was facilitated by the presence of a volunteer parasurgical staff (nurse), a senior resident who served as chief executive officer of the program, cooperative residents, and the monthly progress reporting (Appendix 4).

DOH and other institutions have suggested establishment of pain clinics as a strategy in the cancer pain control. However, the Department did not take up this

recommendation. With establishment of pain clinics, there is a tendency for the expertise of pain control to be limited to a few health care professionals, particularly the anesthesiologists. The Department decided that equipping all surgical residents with the competency of managing of cancer pain and that making pain management part and parcel of services offered in the Department's Tumor and Cancer Clinic and other specialty clinics would be more effective and efficient.

In the evaluation of a cancer pain control program of a department of surgery or even in the entire hospital, the Department deems it best to evaluate all forms of treatment modalities administered to a cancer patient in pain. In almost all of the local papers dealing with cancer pain relief, the assessment was limited to the pharmacologic therapy. Furthermore, it included not only the side effects and adverse reactions of pharmacologic therapy but also the complications of operative as well as other non-pharmacologic treatment

At present, the Department is focusing on the cancer pain control of admitted patients. In the future, the cancer pain control monitoring and evaluation will be extended to the patients in the ambulatory clinics.

The authors hope that this report will serve as an example and model for other departments of surgery as well as other clinical departments dealing with cancer patient to follow and emulate so as to accelerate the achievement of objective of the cancer pain control program of the DOH as well as that of every health care institution and professional in the Philippines, for that matter. The authors welcome adoption and will not impose copyrights restriction on the manuscripts seen in the appendices.

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Table 1. Distribution of different causes and types of cancer pain.

Cause	Frequency	Type of pain caused by the cancer itself		
		Somatic	Visceral	Neuropathic
Cancer itself	24	7	17	0
Treatment (operative)	31			
Treatment (non-operative)	0			

Table 2. Distribution of cancer diagnosis, stage, and range of pain score by stage and by type of cancer on admission prior to treatment (pretx).

Cancer	Stage I	Stage II	Stage III	Stage IV	Total no. by type of cancer
Breast	1	12	15	3	31
Colo-rectal			5	4	9
Hepatic				2	2
Sarcoma	2			1	3
Pancreas				2	2
Esophagus			2	1	3
Thyroid	1			1	2
Oral cavity				1	1
Larynx				1	1
Lymphoma				1	1
Total no. by stage	4	12	22	17	55
Range of pain score by stage (pretx)	0-1	0-2	0-5	2-10	

Table 3. Distribution of cancer diagnosis, stage, and average pain score by stage and by type of cancer 2 days prior to discharge posttreatment (posttx).

Cancer	Stage I	Stage II	Stage III	Stage IV	Total no. by type of cancer
Breast	1	12	15	3	31
Colo-rectal			5	4	9
Hepatic				2	2
Sarcoma	2			1	3
Pancreas				2	2
Esophagus			2	1	3
Thyroid	1			1	2
Oral cavity				1	1
Larynx				1	1
Lymphoma				1	1
Total no. by stage	4	12	22	17	55
Range of pain score by stage (posttx)	0-1	0-1	0-2	1-4	

Table 4. Overall pretreatment and posttreatment distribution of pain scores by month.

	0-3 n (%)	4-6 n (%)	7-10 n (%)	Total patients
May, 2003				
Pretx	10	0	0	10
Posttx	10	0	0	10
June, 2003				
Pretx	13	1	2	16
Posttx	16	0	0	16
July, 2003				
Pretx	11	2	3	16
Posttx	15	0	0	15*
August, 2003				
Pretx	6	2	5	13
Posttx	12	1	0	13
Overall				
Posttx	53	1	0	54

*1 patient died within 24 hours and due to poor condition pain score was not re-assessed.

Table 5. Frequency and outcome of morphine usage in cancer pain control by type and stage of cancer.

Cancer	Stage I	Stage II	Stage III	Stage IV	Total no. of morphine usage by type of cancer
Breast	0/1	0/12	0/15	3/3	3
Colo-rectal			0/5	2/4	2
Hepatic				2/2	2
Sarcoma	0/2			0/1	
Pancreas				½	1
Esophagus			0/2	1/1	1
Thyroid	0/1			0/1	
Oral cavity				0/1	
Larynx				1/1	1
Lymphoma				0/1	
Total no. of morphine use by stage	0/4	0/12	0/22	10/17	10
Range of pain score by stage with morphine usage (posttx)	-	-	-	1-4	

Table 6. Frequency and outcome of non-morphine analgesic usage in cancer pain control by type and stage of cancer.

Cancer	Stage I	Stage II	Stage III	Stage IV	Total no. of non-morphine usage by type of cancer
Breast	1/1	12/12	15/15	0/3	28
Colo-rectal			5/5	2/4	7
Hepatic				0/2	0
Sarcoma	2/2			1/1	3
Pancreas				½	1
Esophagus			2/2	0/1	2
Thyroid	1/1			1/1	2
Oral cavity				1/1	1
Larynx				0/1	0
Lymphoma				1/1	1
Total no. by stage	4/4	12/12	22/22	7/17	45
Range of pain score by stage with non-morphine usage(posttx)	0-1	0-1	0-2	0-1	

Note: This table includes management of pain caused by cancer itself and treatment (post operative pain).

Table 7. Results of control of postoperative pain.

Type of operations	No.	Ave. preop pain score	Ave. 1st day postop pain score	Ave. 2nd day postop pain score
Mastectomy	26	0-2	3-6	0-3
Thyroidectomy	2	0-2	3-4	0-2

Note: Other types of operations were not included due to marked variations in the operative approach.

Table 8. Frequency of side effects and adverse reactions of pharmacologic therapy in cancer pain control.

	Paracetamol	NSAIDS	Tramadol	Morphine
Side effects	liver	epigatric pain	Drowsiness	constipation
Adverse reactions	none	none	None	none
Frequency	0(0%)	5/36(14%)	0(0%)	10/10(100%)

Table 9. Mortality rate and causes of death by type of cancer.

Type of cancer	Mortality		Cause of death	
	Operated	Not-operated	Operated	Not-operated
Breast	1	1	Bleeding	MOF
Thyroid	1		Respiratory failure	
Rectal		1		MOF
Pancreas		1		MOF
Esophagus		1		MOF
Larynx		1		MOF
Lymphoma		1		Respiratory failure
Mortality rate	2/43(5%)	6/12(50%)		
Overall mortality rate	8/55(14.5%)			

Table 10. Morbidity rate by type of cancer.

Type of cancer	Frequency of morbidity		Nature of morbidity	
	Operated	Not-operated	Operated	Not-operated
Breast	1	0	SSI	none
Colon	1	0	Colostomy gangrene	none
Sarcoma	1	0	SSI	none
Morbidity rate	3/43(7%)	0/12(0%)		
Overall morbidity rate	3/55(5.5%)			

Table 11. Listing of problems encountered in the cancer pain control program from May to August, 2003 and the status of resolution.

Problems	When encountered (Month)	Status
Imposition of a requirement that all residents should have S2 license and yellow prescription pad	May (costly and impractical)	Resolution (2 residents has S2 license and yellow prescription pad for the department)
Education of surgical residents and parasurgical staff	May (some residents are not aware of the program and nurses not giving the meds regularly)	Resolution (constant education and reminders to all staff)
Recording	May (residents are not recording the PS score daily)	Resolution (making the pain score part of the vital sign of all cancer patients)
Oversight system	May (checking not done regularly)	Resolution (team leaders should have active involvement)

Appendix 1

A Structured Cancer Pain Control Program
Ospital ng Maynila Medical Center
Department of Surgery

Situation:
No document on cancer pain control program in Ospital ng Maynila Medical Center, in every clinical department
No monitoring system whether cancer pain is adequately or inadequately controlled
No pain scoring system utilized
Residents – no or few have yellow pads for opioid prescription
Pharmacy – poor utilization of available opioids

Targets:
A cancer pain control program in Ospital ng Maynila Medical Center, in every clinical department – in the form of a document and structured.
Presence of monitoring system whether cancer pain is adequately or inadequately controlled.
There is a standardized pain scoring system.
At least majority, if not all of the residents have a yellow pad.
Pharmacy has adequate supply of opioids, particularly, morphine and other analgesics and these drugs are adequately utilized.

Pain control monitoring record

Main modality of pain control: pharmacologic therapy
    2-step: modified WHO analgesic ladder, round the clock, oral
Surgery, Radiotherapy, and Chemotherapy
Psychotherapy

End-points:
Adequate pain control:
    Controlled (0-3) in less than 2 days after admission
    Controlled (0-3) at least 2 days prior to discharge
Patient/relative empowered
    As seen in the ward
    As seen in outpatient follow-up (1 month)
MD develops habit of pain control
    As seen in the ward
    As seen in outpatient follow-up (1 month)

Regular reporting – Hospital Tumor Board; Department's Monthly Service Performance Report

Appendix 2

An Instructional Design on Cancer Pain Control
Ospital ng Maynila Medical Center
Department of Surgery

Setting:

Department of Surgery
Tertiary Government Hospital

2002 Census of Cancer Patients
Total number: 132 admissions
Common types of cancer: Breast, colorectal, thyroid, stomach, pancreas, bone and soft tissue, larynx.

Usual causes of cancer pain:
The cancer itself
The treatment of cancer
Mental anguish brought about by knowing one has a cancer

Trainees: 16 surgical residents
1 volunteer parasurgical staff (nurse)
Rotating medical clerks and interns

Philosophy and Assumptions:

1. All physicians should know how to manage cancer pain. They should be able to render the elemental pain management professional services and to know when and to whom to refer patients needing more complicated pain management professional services.
2. Elemental pain management professional services include psychotherapy (advice and psychosocial support) and pharmacologic therapy (modified WHO analgesic ladder).
3. All physicians should have an S2 license and yellow prescription pads to be able to accomplish the WHO analgesic ladder for cancer pain control.
4. All surgeons should know how to manage cancer pain. With majority of cancers being solid tumors, with malignant solid tumors being primarily treated by operation, and with operation being the recognized specialty of surgeons, the latter are expected to be cancer pain specialists more than any other medical specialists.
5. The surgical residents, being the frontline physicians in a Department of Surgery and implementors of a Department's cancer pain control program, should know how manage cancer pain.
6. Parasurgical staff and medical clerks and interns, being part of the cancer pain management team of the Department of Surgery, are expected to know the

theories and principles of cancer pain control to be able assist the surgical residents effectively.
7. Education in cancer pain control should be comprehensive inclusive of administrative and medical aspect of management.

Learning Objectives:

General learning objective:

At the end of the course, the learners should be able to acquire the requisite competency in the management of a patient with cancer pain.

Terminal learning objectives:

At the end of the course, the learners should be able to:

1. Pass a written exam covering the items specified in the learning content section of this instructional design.
2. For the surgical residents, present and discuss satisfactorily a case management of cancer pain (using the standard Department's evaluation form for case management presentation and discussion).
3. Contribute to the achievement of the targets of the Department's cancer pain control program.

Specific behavioral objectives:

At the end of the course, the learners should be able to:

1. Answer accurately and concisely all the questions posed in the learning content section of this instructional design.
2. Demonstrate expected competency in a simulated management of a patient with cancer pain.
3. Demonstrate expected competency in an actual management of a patient with cancer pain.

Content:

What is cancer pain?
What are the usual causes of cancer pain?
What is the magnitude of cancer pain health problem, particularly in the Philippines?
What are the usual problems encountered in cancer pain control program, particularly in the Philippines?
What are the various ways of assessing degree of cancer pain in a patient and indications for their use?
What are the general principles in the management of a patient with cancer pain?

What are the usual options of treatment modalities for cancer pain control and how should selection be done for a particular patient with cancer pain?
What are WHO recommendations on pharmacologic cancer pain control? DOH recommendations on pharmacologic cancer pain control? What is/are the difference?
What are the administrative (legal) requirements for prescribing opioid analgesics?
How should the yellow prescriptions pad for morphine be filled up by a physician?
How should the success or failure of cancer pain relief for a particular patient be assessed?
How should a cancer pain control program in a department or hospital be formulated? Be evaluated?

Learning strategies:

"Must" learning strategies:
Independent study using the learning objectives and specified learning content as guide (hand-outs may be used)
Actual patient management with supervision

"Optional" learning strategies:
Presentation (lecture and/or case) and discussion
Simulated patient management

Learning resources:

Internet
WHO cancer pain control program
DOH cancer pain control program

Ospital ng Maynila Medical Center's unified concept on cancer pain control program (April,2003)
Ospital ng Maynila Medical Center's cancer pain control program
Ospital ng Maynila Medical Center Department of Surgery's cancer pain control program

Evaluation Methods:

Written exam
Case presentation and discussion for surgical residents only (one case per year)
Monitoring and assessment of Department's Cancer Pain Control Program
Premise: success or failure of the program is a reflection of the competency of the Department's cancer pain control team.

Appendix 3

Ospital ng Maynila Medical Center
Department of Surgery

Ref. no: m03-89
Date: April 19, 2003
TO: All Residents and Consultants
FROM: Department Chair
RE: S2 License and Yellow Prescription Pads

Pursuant to our goal of establishing a cancer pain control program for our Department's clients as well as for training of our residents, all residents are required to have an S2 license and yellow prescription pads during their entire period of residency.

Effective 2004, proof of an updated S2 license and acquisition of yellow prescription pads will form part of the requirements for acceptance of new residents.

For the present residents, the deadline for acquisition of the S2 license and yellow prescription pads will be on April 30, 2003.

The Department will subsidize 50 per cent of the expense of the yellow prescription pads.

What are envisioned are the following:

1. All residents of the Department of Surgery of Ospital ng Maynila Medical Center will always have an S2 license and updated every 3 years and yellow prescription pads to be able to contribute to the success of the cancer pain control program of the department.
2. All residents of the Department of Surgery are competent in comprehensive cancer pain control, inclusive of pharmacologic therapy and particularly the modified WHO's cancer pain relief approach.
3. The number of yellow prescriptions dispensed by the Department will be used as one of the parameters of adequacy of the cancer pain control program of the Department.
4. The number of yellow prescriptions dispensed by a resident will be used as one of the parameters of competency in comprehensive cancer pain control.
5. Number of yellow prescriptions dispensed by the Department and per resident will be monitored during the Department's Monthly Service Performance Report.

Chair
Department of Surgery

Appendix 4

Oversight System for Cancer Pain Control Program
Ospital ng Maynila Medical Center
Department of Surgery

Oversight System – Monitor, Assess, and Feedback

The implementation of the Cancer Pain Control Program of the Department of Surgery will be constantly monitored, periodically assessed (monthly and yearly), and given feedback for improvement.

An assigned senior resident (which may or may not be the chief resident) will be designated as the chief executive officer (CEO) of the program. He/she will constantly monitor and presents a monthly progress report during the Monthly Service Performance Report of the Department.

All problems recognized will be resolved as soon as possible to ensure the objective of the program is achieved.