Association Between Knowledge of Resident Physicians with Practice of Morphine Use Among Government Hospitals

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Introduction: The efficacy of opioids for cancer pain has been proven. However, opioids specifically Morphine usage for cancer pain relief among resident physicians is still low. One of the major contributing factors to inadequate pain control is the healthcare provider's lack of knowledge about cancer and non- cancer pain. Hence, this study was done to assess and identify the level of knowledge and practice of the physicians on opioid use for chronic pain.

Methods: A validated questionnaire on knowledge and practice was given to the resident physicians in training in 2 government hospitals in region 1 namely Ilocos Training and Regional Medical Center (ITRMC) and Mariano Marcos Memorial Hospital and Medical Center (MMMH&MC). Descriptive statistics were used to analyze demographics, overall knowledge and practice on morphine use among resident physicians and inferential statistics were used to test for comparative study between the two different institutions.

Results: A total of 83 respondents, 50 from ITRMC and 33 from MMMH&MC, 56 of which were females and 27 were males showed that the overall knowledge of resident physicians elucidates that out of 11 questions asked, they acquired half normative or mean scores of 6.44 in ITRMC and 5.61 in MMMH&MC, respectively. Resident physicians in both government hospitals do not use or give morphine use acquiring more than half, 27 out of 50 or 54.0% in ITRMC and 23 out of 29 or 79.3% in MMMH&MC.

Conclusion: The results showed that the level of understanding and knowledge on morphine use among resident physicians from both government hospitals is inadequate. Thus, their limited knowledge hinders the utilization of morphine use.

Keywords: Morphine use, government hospitals, knowledge

Introduction

Opioid analgesics are important for the management of acute cancer pain[1,2,3,4] and may be important for the treatment of chronic non-cancer pain in certain populations.[5,6,7,8] Morphine is the standard step 3 opioid analgesic and is the most widely available.[9] Despite of its availability and effectivity, there were still numerous studies reporting inadequately managed cancer pain. One of the major contributing factors to inadequate pain control is the healthcare provider's lack of knowledge about cancer and non-cancer pain. One study entitled, *Investigation*

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and Analysis of Oncologists' Knowledge of Morphine Usage in Cancer Pain Treatment concluded lack of knowledge and harbor misconceptions with regard to cancer pain treatment and morphine's clinical application.[10] According to the data from the International Narcotics Control Board of the Philippines, in 2013, among 59, 012 patients having cancer, 47,210 have died with moderate to severe pain. In addition, the annual morphine consumption was only 13.8kg when in fact the needed amount of morphine to meet minimum demand from deaths due to cancer is 293 kg. The low consumption indicates that Filipino physicians are still reluctant to prescribe morphine to control cancer pain.[11]

One researcher studied the opioid use in chronic pain management in one government hospital and two private hospitals in Manila, concluded that actual opioid use is minimal, however, the correlation between survey results and actual usage indicates a strong awareness of the usefulness of opioids but hesitancy in opioid prescription.[12] In addition, many studies identified predictors associated with less frequent morphine prescription,[13] earlier intervention with maximum analgesic therapy[13,14,15], a reluctance to prescribe morphine and the physician's knowledge of cancer pain.[16,17]

In 2012, pharmacy record in ITRMC has shown that 1137 morphine ampoules were purchased and only 11% were availed, and from the 372 10mg tablets, not even one was availed and in MMMH&MC, 10,800 morphine tablets were purchased and only 25.6% were availed. Consequently, both pharmacies procured lesser number of morphine ampoules and tablet.

This study elucidated the above scenario to both medical centers and determined that there is a strong correlation between knowledge of morphine use among cancer patients and practice in pain control.

Patients and Methods

Research Design

Analytical cross sectional design

Study Population

Resident physicians managing cancer and non-cancer patients.

Eligibility Criteria

Inclusion Criteria

Resident physicians in training among DOH retained hospitals in Region 1 mainly ITRMC in San Fernando La Union and MMMH&MC in Batac, Ilocos Norte).

Exclusion Criteria

Resident physicians who underwent or are undergoing formal training on pain management were excluded in the study.

Study Procedure

Formal letters were sent to MMMH&MC and ITRMC Medical Center Chief for permission to conduct the study. MMMH&MC and ITRMC released an approval to proceed with the survey. Total enumeration of all resident physicians in training in the afore mentioned government hospitals and who are directly managing patients with chronic pain.

Sample Size Calculation

Sample size of 81 was calculated based on the population of the respondents at 95% confidence level, 5% margin of error at 0.50 standard deviation then when categorized as to institution: 49 samples for ITRMC and 32 for MMMH&HC. Respondents agreed to participate and answer the questionnaires completely, after their informed consent was secured in accordance with the Ethics Committee's Guidelines on research involving human subjects.

Data Collection

The data were collected through self-administered questionnaire conducted by 3 research assistants (1 in MMMH&MC and 2 in ITRMC) during a one week period. The validated questionnaire developed by Gallagher, Hawley and Yeomans and approved by the College of Physicians and Surgeons of British Columbia was used. Designed to assess the physicians' confidence on opioid use and their knowledge about opioids, it consists of 15 questions. Eleven of the questions surveyed knowledge and the rest asked for demographic and one question for practice.

Respondents fulfilling the eligibility criteria were asked to sign an informed consent before answering the questionnaire.

They were given a seven (7)-day prescription period to answer the questionnaire. The research assistants collected the answered questionnaire. The data were encoded using Microsoft Excel by the three (3) research assistants who gathered the data.

Statistical Analysis

Tools for Data Analysis

To validate the accuracy of the treatment and analysis of the results, the following statistical tools were utilized using SPSS version 21: For the comparative demographics of the resident physicians in ITRMC and MMMH&MC along sex, specialty, year level and number of patients seen with chronic pain/month, frequency count and percentage was used. Relatively, chi – square test was used to test the difference on the proportions of the background of the respondents.

- For the overall knowledge of the resident physicians in ITRMC and MMMH&MC, mean and standard deviation were utilized. Additionally, t – test was used to test the difference on the knowledge of resident physicians in the two government hospitals.
- For the knowledge of the resident physicians in ITRMC and MMMH&MC per question, frequency count and percentage were used. Comparatively, chi – square test was utilized to test the difference on the proportions of knowledge of the resident physicians of both government hospitals per question.
- For the practice on morphine use of resident physicians in ITRMC and MMMHC&MC, frequency count and percentage were used. Comparatively, chi – square test was utilized to test the difference on the proportions of practice of the resident physicians of both government hospitals.
- For the overall relationship between the knowledge and practice on morphine use of resident physicians in ITRMC and MMMHC&MC, Eta-squared was utilized to determine the extent of relationship, while t – test to determine its significance.

Results

Sex Demographic of the Resident Physicians in ITRMC and MMMHC&MC

There were 56 females and 27 males. Majority of the respondents were female 64% in ITRMC and 72.7% in MMMHC&MC, respectively. Table 1 shows that there is no significant difference between the proportions of female and male in both government hospitals. (Table 1)

Table 1. Comparative demographics of the resident physician between ITRMC and MMMHC & MC.

Indicators			Hospital	
			ITRMC	MM
Sex	Female	Count	32	24
		% within Hospital	64.0%	72.7%
	Male	Count	18	9
		% within Hospital	36.0%	27.3%
		Total Count	50	33
		% within Hospital	100.0%	100.0%

* Significant when p – value is less than 0.05

Specialty Demographic of the Resident Physicians in ITRMC and MMMHC & MC

It shows that almost one-fourth (24%) of the respondents were from Internal Medicine in ITRMC and almost one-third (33.3%) were from Obstetrics-Gynecology in MMMH&MC. (Table 2)

Year Level Demographic of the Resident Physicians in ITRMC and MMMHC & MC

Table 3 shows that 42.0% of the resident physicians in ITRMC were in first year, 26.0% were in second year, 16.0% were in third year, 8% were in fourth year and 8% were in fifth year level. Whereas in MMMH&MC, 33.3% were in first

Table 2. Specialty *hospital cross tabulation between ITRMC and MMMHC & MC.

Indicators			Hospital		p – value
			ITRMC	MMMHC & MC	
Specialty	Internal Medicine	Count	12	7	<0.001*
		% within Hospital	24.0%	21.2%	
	Surgery	Count	11	2	
		% within Hospital	22.0%	6.06%	
	Pediatrics	Count	9	5	
		% within Hospital	18.0%	15.15%	
	Obstetrics and Gynecology	Count	8	11	
		% within Hospital	16.0%	33.3%	
	Ophthalmology	Count	4	3	
		% within Hospital	8.0%	9.09%	
	ORL – NHS	Count	6	5	
		% within Hospital	12.0%	15.15%	
	Total	Count	50	33	
		% within Hospital	100.0%	100.0%	

* Significant when p – value is less than 0.05

Table 3. Year level * Hospital crosstabulation between ITRMC and MMMHC & MC

Indicators			Hospital		p – value
			ITRMC	MMMHC & MC	
Year Level	1st	Count	21	11	0.184
		% within Hospital	42.0%	33.3%	
	2nd	Count	13	16	
		% within Hospital	26.0%	48.5%	
	3rd	Count	8	4	
		% within Hospital	16.0%	12.1%	
	4th	Count	4	2	
		% within Hospital	8.0%	6.1%	
	5th	Count	4	0	
		% within Hospital	8.0%	0.0%	

* Significant when p – value is less than 0.05

year, 48.5% were second year, 12.1% were third year and 6.1% were in fourth year level.

Number of Patients seen with Chronic Pain/Month Demographic of the Resident Physicians in ITRMC and MMMHC&MC

Respondents from both government hospitals accommodated 1 to 5 patients or 60.0% and 66.7%, respectively. (Table 4)

Overall Knowledge of the Resident Physicians on Morphine Use in ITRMC and MMMHC&MC

Out of 11 questions asked, resident physicians acquired half normative or mean scores of 6.44 in ITRMC and 5.61 in MMMH&MC, respectively. This means that generally, the level of understanding of the respondents relative to morphine use is not that adequate. It also demonstrates that the distribution of knowledge perceptions of resident-physicians in both government hospitals are somewhat varied 1.929 in ITRMC and 2.761 in MMMHC&MC, respectively. (Table 5)

Table 4. Number of patients seen with chronic pain/month * Hospital Cross tabulation between ITRMC and MMMHC & MC.

Indicators			Hospital		p – value
			ITRMC	MMMHC & MC	
No. of Patients	None	Count	7	2	0.524
		% within Hospital	14.0%	6.1%	
	1 to 5	Count	30	22	
		% within Hospital	60.0%	66.7%	
	5 to 10	Count	3	4	
		% within Hospital	6.0%	12.1%	
	10 to 30	Count	7	5	
		% within Hospital	14.0%	15.2%	
	50+	Count	1	0	
		% within Hospital	2.0%	0.0%	
	Total	Count	50	33	
		% within Hospital	100.0%	100.0%	

* Significant when p – value is less than 0.05

Table 5. Overall knowledge of the resident physicians with morphine use

Indicator	Hospital	N	Mean	Std. Deviation	Levene's Test for Equality of Variances	p - value
Overall Agree	ITRMC	50	6.44	1.929	0.063	0.109
	MMMHC & MC	33	5.61	2.761		

* Significant when p – value is less than 0.05

Comparative Knowledge of the Resident Physicians in ITRMC and MMMHC&MC per Question

There is no significant difference on the proportions of knowledge of resident physicians in ITRMC and MMMH&MC on morphine use to most of the questions except, question number 5 which acquired p – value of 0.018 definitely lower than 0.05. (Table 6)

Practice of Resident Physicians with Morphine Use

Table 7 shows that resident physicians in both government hospitals do not practice morphine use acquiring more than half or 54.0% in ITRMC and 79.3% in MMMHC&MC, respectively.

Table 6. Knowledge*Hospital crosstabulation between ITRMC and MM per question.

Questions		Hospital				p – value
		ITRMC		MM		
		Agree	Disagree	Agree	Disagree	
Q1	Count	39	11	21	12	0.152
	% within Hospital	78.0%	22.0%	63.6%	36.4%	
Q2	Count	31	19	18	15	0.499
	% within Hospital	62.0%	38.0%	54.5%	45.5%	
Q3	Count	18	32	12	21	0.973
	% within Hospital	36.0%	64.0%	36.4%	63.6%	
Q4	Count	10	40	11	22	0.171
	% within Hospital	20.0%	80.0%	33.3%	66.7%	
Q5	Count	37	13	16	17	0.018*
	% within Hospital	74.0%	26%	48.5%	51.5%	
Q6	Count	37	13	25	8	0.857
	% within Hospital	74%	26.0%	75.8%	24.2%	
Q7	Count	29	21	12	21	0.054
	% within Hospital	58.0%	42.0%	36.4%	63.6%	
Q8	Count	33	17	21	12	0.825
	% within Hospital	66.0%	34.0%	63.6%	36.4%	
Q9	Count	23	27	11	22	0.251
	% within Hospital	46.0%	54.0%	33.3%	66.7%	
Q10	Count	41	9	23	10	0.192
	% within Hospital	82.0%	18.0%	69.7%	30.3%	
Q11	Count	24	26	15	18	0.820
	% within Hospital	48.0%	52.0%	45.5%	54.5%	

* Significant when p – value is less than 0.05

Table 7. Using * Hospital crosstabulation between ITRMC and MM

Indicators			Hospital		p – value
			ITRMC	MM	
Using	Yes	Count	23	6	0.024*
		% within Hospital	46.0%	20.7%	
	No	Count	27	23	
		% within Hospital	54.0%	79.3%	
	Total	Count	50	29	
		% within Hospital	100.0%	100.0%	

* Significant when p – value is less than 0.05

Table 8. Relationship between Knowledge and Practice Using Morphine in ITRMC and MMMHC & MC.

Bivariate	ITRMC		MMMHC & MC	
	eta	p –value	Eta	p – value
Knowledge*Practice*Hospital	-0.229	0.110	0.657	<0.001*

* Significant when p – value is less than 0.05

Relationship Between Morphine Use Knowledge and Practice in ITRMC and MMMHC & MC

Knowledge on morphine use is indirectly, associated to practice of resident physicians in ITRMC acquiring p – value of 0.110 which is higher than 0.05. But on the other hand, direct, strong and significant relationship exists in MMMHC&MC obtaining p – value of <0.001 which is lower than 0.05. (Table 8)

Discussion

Pain is one of the most commonly experienced and dreaded symptoms of advanced cancer. Most cancer patients experience pain, usually moderate to severe intensity[18] which poses a significant threat to the quality of life of patients and their families.[19] This may be due to limited knowledge of resident physicians.

The comparative specialty demographic of the resident physicians in ITRMC and MMMHC & MC showed relatively that there exist significant difference on the proportions of specializations to both ITRMC and MMMHC & HC obtaining a p – value which is <0.001 definitely lower than 0.05. Thus, the distribution of specialty to ITRMC and MMMHC & MC is not equitably distributed. The incomparable and diverse specializations to both government hospitals may be surmised to their priorities in providing the needs and quality services to the clientele.

The comparative knowledge of the resident physicians in ITRMC and MMMHC&MC per question means that the agreement and disagreement on the awareness and understanding on morphine use are fairly and equitably manifested among residents of both government hospitals

except question number 5, which implies divergence on the knowledge perceptions.

The number of resident physicians not utilizing morphine to patients with chronic pain is perhaps the result of acquiring limited awareness and knowledge on morphine use. Moreover, the testing reveals that there is a significant difference on the proportions of practice on morphine use among resident physicians in ITRMC and MMMHC&MC, respectively. Hence, this provides a reference that MMMHC&MC resident physicians obtained relatively high non - practice of morphine use than ITRMC.

The association and its significance between the knowledge and practice of resident physicians in ITRMC and MMMHC&MC manifest that the great number of resident physicians not using morphine for chronic pain patients is attributed to their fair knowledge. Thus, their limited knowledge hinders the utilization of morphine use.

Conclusion

Knowledge regarding the use of analgesic drugs, particularly morphine, in government practice is still limited despite the introduction of the WHO's principle of the three-step analgesic ladder of cancer. The findings imply a need to look into training among resident physicians for chronic pain management.

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