

# Assessment of Knowledge, Attitude and Exposure to Oncology and Palliative Care in Undergraduate Medical Students

**B M Biswal, MD, A Zakaria, PhD\*, A A Baba. MRCP\*\*, R Ja'afar. MHPed\*\*\***

\*Department of Nuclear Medicine, Radiotherapy & Oncology, \*\*Department of Medicine and \*\*\*Medical Education School of Medical Science, Universiti Sains Malaysia, Kubang Kerian, Kelantan

## Summary

We conducted a questionnaire survey among 261 year-4 and year-5 medical students containing 27 questions related to cancer, radiotherapy, general oncology and palliative care to assess their knowledge, understanding, and exposure to oncology and palliative care in our medical school. Out of 261 students, 139 students returned their questionnaire for analysis. Twenty nine percent (29%) of the students had rarely visited the Radiotherapy and Oncology unit. There were profound deficiencies in the basic knowledge of cancer (46%), principles of radiotherapy treatment (59%), palliative care (64%), and cancer prevention (48%). They reported no specific teaching about early detection of common malignancies and cancer prevention. The main input of instruction about cancer came from surgery (46%) and pathology (28%) teachings. This study revealed that there is deficiency in cancer education in the undergraduate teaching program in our institution.

**Key Words:** Undergraduate, Medical education, Cancer, Radiotherapy and Oncology, Palliative care

## Introduction

The curriculum for undergraduate training in medicine is changing. Instead of the traditional teacher centered curriculum, many medical schools have adopted the problem based learning (PBL) approach to involve students in the learning process<sup>1</sup>. While there appears to be a changing trend in the approach to learning, there is a need to look at the content of the undergraduate medical curriculum in relation to priorities and prevalence of disease. In the clinical years, subjects concerning infective diseases and nutritional diseases are given teaching priority compared to cancer. Yet over the past few decades, the disease pattern has changed. Cancer is considered as the biggest killer disease among non-communicable diseases surpassing road traffic

accidents and cardiovascular diseases<sup>2,3</sup>. The magnitude of the cancer problem is especially felt in the developing world<sup>4</sup>. In one study, the total number of cancer patients demanding care globally per year is estimated at 15.5 million<sup>5</sup>. Moreover the World Health Organization (WHO) has projected an annual cancer incidence rate of 20 million per year by the year 2020<sup>6</sup>.

Surprisingly, there is little effort to improve undergraduate cancer education to cope with the new disease trend. Due to lack of knowledge about cancer, early detection of cases requiring radiotherapy and oncology interventions are delayed<sup>7</sup>. There is also an almost non-existence of palliative care input in undergraduate medical courses in some Universities<sup>8</sup>.

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Corresponding Author: B M Biswal, Department of Nuclear Medicine, Radiotherapy & Oncology School of Medical Science, Universiti Sains Malaysia, Kubang Kerian, Kelantan

The palliative care concept should be covered during early clinical years. At present very few medical schools have ventured to incorporate radiotherapy, oncology and palliative care modules in the formative clinical years of the medical course<sup>9-10</sup>. A global effort is necessary to prepare doctors of the new millennium for future challenges in cancer management<sup>11</sup>. In this study we examined our student's knowledge, attitudes and understanding about cancer towards cancer management and we looked at the effectiveness of the teaching program in radiotherapy, oncology and palliative care at our Medical School.

### Materials and Methods

From 1998 to 1999, 261 fourth and fifth year medical undergraduate students at the School of Medical Sciences, Universiti Sains Malaysia were subjected to a questionnaire survey containing 27 radiotherapy, oncology and palliative care related questions. The method of teaching at our Medical school is problem-based learning (PBL). The teaching materials include lectures, demonstrations, PBL, group teachings, multiple explanatory questions (MEQ), and multiple-choice questions (MCQ) covering all subjects of Medical Sciences.

#### Design of the questionnaire

There were 27 questions in the survey. There were 5-questions related to principles of radiotherapy. The questions were straightforward in relation to teletherapy, brachytherapy, topics covered in radiotherapy, cancers treated by radiotherapy and cancers cured by radiotherapy. The next sections related to palliative care in cancer. The questions (total 4) were related to the definition of palliation, WHO three step analgesic ladder, optimal analgesic for bone metastases and basic knowledge about prescription of oral morphine in advanced cancer patients. In the third section (total 5), the questions consisted of common cancers in men and women, cancer caused by cigarette smoking, 5-year cure rate in Hodgkin's lymphoma and peak age incidence for cancer cervix. There were 5 questions related to cancer prevention. The questions consisted of breast self examination, smoking and cancer, knowledge about PAP smear, implication of PAP smear in cancer and general knowledge about cancer prevention. The general attitude of students towards radiotherapy & oncology were tested using 8 questions. The questions were related to frequency of visits to the radiotherapy unit, teaching program in radiotherapy,

source of cancer information, desire to know about radiotherapy, participation in cancer detection camp, priority of radiotherapy in examination questions, radiotherapy as a choice of career and participation in a palliative care course. In the above questionnaire, 11 questions were direct response type and 16 were multiple question type.

### Results

Out of 261 medical students, 139 students returned the questionnaire for evaluation. The male to female ratio of the students was 1:1.5. The knowledge of radiotherapy and oncology ranged between 15-65% (mean 41%) among the undergraduate medical students (Table-I). Almost a third (29%) of the students rarely visited the Radiotherapy Department and about 10% had never attended the Department during their whole undergraduate program. Their theoretical knowledge about cancer was 18-98% (mean 46%) (Table-II). Forty percent (40%) of students did not know the meaning of palliative care in cancer (Table-III). None of the subjects participated in any cancer detection screening camp.

About 80% of the students reported that approximately five teaching sessions were devoted to cancer and its management during their undergraduate course. Exposure to cancer patients in clinics and wards are also very limited in comparison to other clinical branches, constituting less than 10% of their clinical teaching time.

There was an increasing interest amongst the students to have dedicated classes about cancer treatment and radiotherapy in particular. Many indicated a need for dedicated teaching in cancer management. Some students suggested classes on gynecologic radiotherapy and radiotherapy related to common cancers. From the existing teaching modules, the input mainly came from surgery (46%), pathology (28%), gynecology (14%), and internal medicine (20%). When asked about Papanicolaou (PAP) smear in genital cancer, breast self-examination in breast malignancy, and WHO three-step analgesic ladder for cancer pain relief, 28-63% (mean 48%) of students failed to give correct answers (Table-II, IV).

Knowledge about common cancers in men and women and smoking related cancers were excellent among our students. However there was a lack of knowledge about the five-year survival rates of common malignancies and their epidemiology (Table-III).

When asked to choose the preference of specialty as a postgraduate course, out of the ten common specialties, radiotherapy and oncology was not considered as the most favored specialty of choice. The ranking of subjects according to their priority were: 1. Surgery [54%], 2. Internal medicine [43%], 3. Gynecology [33%], 4. Paediatrics [26%] 5. Radiology [26%], 6. Radiotherapy

[20%], 7. Orthopedics [15%], 8. Ophthalmology [8%], 9. Otorhinolaryngology [5%], and 10. Community medicine [0,5%]. When asked about the knowledge of cancer prevention, the response varied from 13% to 75%. Specific basic knowledge of PAP smear cytology was inadequate [28%] (Table-IV).

**Table I: Knowledge about radiotherapy**

Parameters	Proportion of Students (%)		
	Year-4	Year-5	Total
Disease treated by radiotherapy	8/68(11.7%)	13/71(18%)	21/139(15%)
Subjects taught in radiotherapy	45/68(66%)	52/71(73%)	97/139(65%)
Meaning of teletherapy	22/68(22%)	34/71(47%)	56/139(34%)
Meaning of brachytherapy	17/68(25%)	31/71(44%)	48/139(34%)
Cancer cured by radiotherapy	29/68(42%)	36/71(50%)	65/139(46%)
Total	121/340(35%)	166/355(46%)	287/695(41%)

The above figures suggest correct answers

**Table II: Knowledge on palliative care**

Questionnaire	Proportion of students giving correct answers (%)		
	Year-4	Year-5	Year-4 & 5
What is palliation?	32/68(48%)	52/71(71%)	84/139(60%)
WHO 3-step analgesic ladder	14/68(20%)	22/71(31%)	36/139(25%)
Best analgesic for bone metastases pain	18/68(26%)	28/71(39%)	46/139(33%)
Knowledge to prescribe morphine in cancer pain	11/68(16%)	25/71(35%)	36/139(25%)
<b>Total</b>	<b>46/272(17%)</b>	<b>127/284(44%)</b>	<b>202/695(36%)</b>

**Table III: Overall knowledge about cancer**

Questions	Proportion of students giving correct answers (%)		
	Year-4	Year-5	Both year-4 & 5
Common cancer in man	42/68(61%)	30/71(42%)	72/139(51%)
Common cancer in female	63/68(92%)	45/71(63%)	108/139(77%)
Cancer cause by smoking	65/68(95%)	71/71(100%)	137/139(98%)
5-year cure rate in Hodgkin's lymphoma	5/68(7%)	21/71(31%)	26/139(18%)
Peak age of cancer cervix	13/68(19%)	22/71(35%)	35/139(25%)
<b>Total</b>	<b>186/340(54%)</b>	<b>231/355(65%)</b>	<b>378/695(54%)</b>

The above figures suggests correct answers

**Table IV: Knowledge about cancer prevention**

Questionnaire	Proportion of students giving correct answers (%)		
	Year-4	Year-5	Year-4 & 5
Breast self examination [BSE]	34/68(50%)	54/71(76%)	88/139(63%)
Smoking and cancer	65/68(95%)	71/71(100%)	137/139(98%)
Knowledge about PAP smear	17/68(25%)	22/71(31%)	39/139(28%)
Use of PAP smear in diseases	38/68(55%)	32/71(45%)	70/139(50%)
Knowledge about cancer prevention	9/68(13%)	24/71(33%)	33/139(23%)
<b>Total</b>	<b>163/340(48%)</b>	<b>203/355(57%)</b>	<b>367/695(52%)</b>

The above figures suggests correct answers 5r

### Discussion

The current study among undergraduate students in their clinical years revealed significant deficiencies in their basic knowledge about cancer (46%), principles of radiotherapy (59%), cancer prevention (48%) and palliative care (64%). There was also a negative attitude towards, radiotherapy and oncology. Similar findings were also observed by various workers<sup>12-14</sup>. In the present day context, undergraduate medical curriculum changes have not kept pace with the changing disease pattern in the community. In the past, the core subjects surgery, internal medicine, gynecology & obstetrics, preventive medicine, pathology, microbiology, forensic medicine and pre-clinical subjects were covered within the limited 4<sup>1</sup>/<sub>2</sub>-year medical course<sup>15</sup>. For a long time medical educators and policy makers of undergraduate medical program considered these courses as adequate. Subsequently with the development of sub-specialties, there was growing pressure to include other important subjects into the core medical curriculum. Over the years there is also a changing pattern of disease distribution in both the developing and developed world. Cancer is emerging as the forerunner of all non-communicable diseases. The World Health Organization estimated that there would be 20 million new cancer cases diagnosed each year by the year 2020; and 12 million will die of cancer unless there is significant advances in cancer care<sup>6</sup>. Much of the cancer burden is expected to come from the developing countries.

Radiotherapy is a modality directly involved in the management of cancer patients with about 70% of patients benefiting from it during their illness<sup>4</sup>. Moreover about 2/3<sup>rd</sup> of cases in developing countries are detected at a late stage requiring palliative care. World Health Organization introduced a palliative Medicine course in 1987<sup>3,16</sup>. World Health Organization

(WHO) recommends one palliative care facility at all secondary health care centers. There is a need to empower primary care doctors to cater for palliative care in the community. Hence there is a need to amend educational reforms in the undergraduate curriculum to prepare future doctors who will be competent to meet the palliative care needs of the patients and community at large.

Despite the growing importance of cancer as a leading cause of death, and suggestions recommended to the policy makers, very few medical schools have included radiotherapy and palliative care courses in their undergraduate curriculum<sup>17-18</sup>. The palliative care subjects in particular have been emphasized in the Australian medical curriculum<sup>12</sup>. However studies have shown that there are still significant deficiency in the understanding of radiotherapy, oncology, cancer prevention and palliative care teaching of undergraduate curriculum<sup>19</sup>. In the United States, there are no designed or structured classes devoted to cancer prevention or regular community based early detection camps in the medical colleges<sup>20</sup>.

The Australian Medical School curriculum for example has incorporated oncology teaching including palliative care. A study was conducted in Australia in 1991, which reviewed cancer education among medical schools of Australia. There were 84% (389) respondents. Forty-two (42%) percent of the students stated that that they have never attended radiotherapy and 50% had not received specific instructions on palliative care in cancer in contrast to number of replies not attending medicine and surgery was only 10-17%. In the same study, there were poor teaching of palliative care (30%), cancer prevention (8.4%) and curative treatment of cancer (15%) amongst the medical schools<sup>21</sup>. Similarly in our

study too, 29% of students admitted that they rarely visited radiotherapy facility at our hospital. Palliative care has been reported as the most neglected branch of medicine<sup>10</sup>. In our study when asked about palliative care, 40% of the students did not know the meaning of palliative care in cancer. Moreover two-thirds of students did not know about the WHO three-step analgesic ladder for cancer pain relief nor they know about the role of radiotherapy in pain relief of bone metastases. In the existing curriculum for undergraduates in our medical school, there are no specific teachings for palliative care medicine.

In Malaysia very few medical graduates are interested to join in the oncology disciplines leading to shortage of oncologists and imbalance in the oncologists to cancer patient ratio. In our survey many of the students did not showed interest towards radiotherapy and oncology subject and also they did not agree oncology as a career of choice at par with Medicine or Surgery subjects. In well-developed countries like United Kingdom, there was considerable variation between departments in regards to teaching commitments and curriculum<sup>22</sup>. In an earlier study, Write and colleagues reported a very low priority for selecting radiotherapy and oncology related subjects as postgraduate specialty of choice among medical graduates in UK<sup>15</sup>. In our study, radiotherapy is also not a preferred subject to choose for specialization. Our students prefer to specialize in classical clinical disciplines such as internal medicine, general surgery, gynecology and obstetrics or pediatrics. A postal survey in UK involving 3657 doctors revealed that, more students prefer to specialize in traditional clinical disciplines rather than classical primary care specialties<sup>23</sup>. Another study in Malaysia about the career

preferences among doctors aspiring postgraduate education revealed that interest/enjoyment in the specialty, the clinical nature of the specialty and working experience in the specialty were the most important reasons for their choice<sup>24</sup>. Probably the low priority in oncology and radiotherapy related subjects in our study might be due to improper and sub-optimal representation of this subject in the undergraduate curriculum.

There is still confusion about the teachers for palliative care course to ensure the goals of caring for cancer patients. All medical students should be taught symptom management as part of their clinical course. However the course should also emphasize positive and empathetic attitudes as well as clinical examination skills, factual information and understanding of disease pathophysiology. Hence serious attention to the design undergraduate curriculum incorporating topics in palliative care is crucial<sup>10</sup>. Recent efforts to incorporate palliative care in the health care system in Malaysia can only succeed if palliative medicine is introduced and strengthened in medical education.

### Conclusion

In summary, our survey has shown significant deficiencies in the knowledge, exposure and attitude towards radiotherapy and oncology related subjects. Reforms in existing undergraduate medical curriculum with regard cancer education are necessary. There should be a National and International effort to establish a uniform cancer-teaching module to undergraduate students.

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