Educational Notes

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Clinical Learning Experiences of Israeli Medical Students in Health Promotion and Prevention of Cancer and Cardiovascular Diseases

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Abstract

Background: The importance of health promotion and disease prevention in health policy and clinical practice is widely accepted in many countries. However, a large number of medical schools do not dedicate a significant part of their curriculum to these aspects. In Israel, there are no reports on the training of the future physician towards his or her role as health promoter in general, or in the areas of cardiovascular and cancer diseases specifically.

Objectives: To examine the preparation of Israeli medical students for the role of health promoter in cancer and cardiovascular diseases.

Methods: The study was carried out over 2 years in two of the four medical schools in Israel: the Sackler Faculty of Medicine at Tel Aviv University and the Faculty of Health Sciences at Ben-Gurion University in Beer Sheva. The students (n = 172, 70% response rate) were surveyed during 1999–2000 by means of a questionnaire, which included assessment of their training towards the role of health promoter, their clinical experiences and exposure to patients at different stages of illnesses at various medical sites, and the specific skills and relevant knowledge they acquired.

Results: Most of the students' learning experiences occurred in hospitals with patients at the treatment stage and little time was dedicated to prevention, especially in the community. They demonstrated better knowledge, skills and satisfaction with their learning experiences in CVD than in cancer; and reported having insufficient exposure to several common cancer diseases and lacking examining skills for early detection of cancer. The students in Beer Sheva had significantly more interaction with patients at different stages of CVD and acquired more examination skills than the Tel Aviv students.

Conclusions: A change in the curriculum is urgently needed: namely training medical students in community settings and preparing them to promote the well-being of their patients, including prevention. Attention should be given to launching new learning modes in the pre- clinical and clinical curriculum. We propose that: a) pre-clinical courses include prevention techniques in CVD and cancer, problems of cancer patients, and some examining skills; and b) the clinical phase should integrate oncology concepts and total cancer and CVD care into existing clerkships in the hospitals and in the community.

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Health promotion and disease prevention are gaining an increased emphasis in health policy and clinical practice [1,2]. Future physicians will be expected to provide an array of clinical preventive services and be responsible for the health and well-being of the community [2,3]. However, these areas have not yet become important aspects of medical school curricula in western countries [4,5].

In many medical schools in the United States and Europe, prevention stages, health promotion and rehabilitation are not adequately represented in the curricula. Medical school graduates lack the means to provide these services to the community [2,6–8]. Few medical schools report on emphasizing prevention via integration into clinical clerkships [9,10]. Furthermore, most schools expose students mainly to diagnosis and treatment in hospitals, with less emphasis on the well-being of the healthy population [2,5] and on patients needing palliative care [11].

The present study explores the learning experiences of Israeli medical students with regard to promoting health, and to prevention and rehabilitation of two leading death-causing illnesses in Israel: cancer and cardiovascular diseases. The specific objectives were:

- To report on students' learning experiences with cancer and CVD as defined by four dimensions:
  - a) Medical teaching sites (hospitals, outpatient clinics and community clinics)
  - b) Interaction with patients in different stages of illnesses (prevention, diagnosis, treatment and rehabilitation)
  - c) Exposure to a variety of specific illnesses
  - d) Acquisition of preventive examining skills.

CVD = cardiovascular diseases

- To assess students' basic knowledge on aspects of health promotion and prevention of cancer and CVD.
- To evaluate the learning experiences based on the students' overall assessment of the training, teaching time allotted in the curriculum to the different aspects, and the calculated means of all items related to the teaching of either cancer or CVD.

Methods

A two-part self-administered questionnaire was developed for this study. In preparing the questionnaire, the researchers consulted with experts in health promotion and prevention, as well as with specialists in oncology and CVD. The first part – on clinical learning experiences – included 45 closed-type questions based on four scores: 1 = not at all, 2 = very little, 3 = sufficient, and 4 = a great deal. The students were asked to report on the number of encounters they had with patients at the various medical sites and stages of illness. In addition, questions referred to students' exposure to specific common cancer and CVD diseases, the time alloted to each aspect, and the acquisition of examining and screening skills. Finally, students were asked for their overall assessment of the training.

The second part – on basic knowledge – included 14 open-ended questions on risk factors and epidemiology of diseases, criteria for diagnosis of CVD, and screening tests to detect cancer. The researchers consulted with expert physicians on the assessment and scoring of the answers.

Descriptive statistics were used to calculate the frequency of students' responses to each question, as well as means and standard deviation. Chi-square significance tests and t-tests were carried out to analyze the contingency tables and differences in means.

The questionnaire was administered during two academic years (1998–99 and 1999–2000) to students at two medical schools in Israel: Sackler Faculty at Tel Aviv University, and Faculty of Health Sciences at Ben-Gurion University in Beer Sheva. In both schools, the students were in their sixth year, the last year of the medical school curriculum.

Results

The students' total response rate was about 70%. Of the 172 students, 108 were from Tel Aviv and 64 from Beer Sheva. No significant differences were found between the responses of the students in different years, although some differences were noted between Tel Aviv and Beer Sheva students in certain aspects.

Students' learning experiences (four dimensions)

- *Encounters with patients by medical sites:* In hospital wards, the majority of students (70–99%) reported encountering patients sufficiently to a great deal [Table 1]. In hospital clinics, fewer students (52–69%) had an acceptable number of encounters, while only a small number of students had encounters with patients in the community (9% in hospice

and 17% in CVD rehabilitation centers). Similar results were noted for the two diseases. Students from Beer Sheva, where the curriculum emphasizes community teaching, dealt significantly more with prevention and follow-up of CVD patients than did Tel Aviv students.

- *Stages of illness:* Most of the students were exposed to patients during the treatment stage (either in hospital or in clinics). At the diagnosis stage, students reported encountering a sufficient number to a great deal of CVD patients (81%) as compared to cancer patients (35%). Adequate encounters with follow-up patients were reported by about half the students in both cancer and CVD. In the stage of prevention, only 38% of students reported a sufficient to a great deal of encounters with CVD patients (no direct question was asked about cancer); and in the stage of palliative care and rehabilitation, a very small group of students encountered a sufficient number of patients and about half of them did not meet patients at all.

Table 1. Students report on interactions with patients by medical sites and stages of illness (%)

Sites and stages (n=172)	Not at all	Very little	Suffi-cient	A great deal	Total
Cancer					
Diagnosis*	21	44	30	5	100%
Treatment in hospital	5	25	50	20	100%
Treatment in hospital clinics	11	37	35	17	100%
Follow-up of patients	20	33	31	16	100%
Community: Hospice	46	45	9	–	100%
CVD					
Prevention*	28	36	24	14	100%
Diagnosis*	2	17	38	43	100%
Treatment in hospital	–	1	28	71	100%
Treatment in hospital clinics*	9	22	39	30	100%
Follow-up of patients*	13	32	28	27	100%
Community: rehabilitation	49	34	13	4	100%

* The average score of Beer Sheva students was significantly higher ($P > 0/05$) than that of Tel Aviv students in this dimension.

Table 2. Students report on encounters with specific illnesses (%)

Encounter with illnesses (n=172)	Not at all	Very little	Suffi-cient	A great deal	Total
Cancer patients					
Lung cancer	12	52	31	6	100%
Breast cancer	1	26	45	28	100%
Melanoma	35	49	13	3	100%
Prostate cancer	19	39	35	7	100%
Uterine cancer	6	34	47	13	100%
Colon cancer	1	10	38	51	100%
Leukemia	15	51	28	6	100%
CVD patients					
Rheumatic heart disease	10	46	33	11	100%
Congenital heart disease	16	60	22	2	
Valvular heart disease	1	14	44	41	100%
Artherosclerotic heart disease	1	–	19	80	100%
Cardiomyopathy	8	34	27	31	100%

Table 3. Students report on acquisition of examining skills (%)

Examination skills (n=172)	Not at all	Very little	Suffi-cient	A great deal	Total
Cancer					
Gynecologic examination	9	51	32	8	100%
Screening for melanoma	43	40	16	1	100%
Breast examination	1	32	48	19	100%
Rectal examination	2	34	39	25	100%
CVD					
Physical examination of the heart	1	3	42	54	100%
Interpretation of electrocardiogram	–	9	43	48	100%

Table 4. Students demonstrating basic knowledge of CVD and cancer (%)

Areas of knowledge	Cancer	CVD
Valid screening test for cancer	32	
Preventable cancer	20	
Successful treatment for cancer illnesses	28	
Palliative/alternative treatment	78	
Common cancers – in men	30	
Common cancers – in women	30	
Most common mortality causes (cancer, CVD)	72	72
Factors determining cure of cancer	15	
Risk factors for coronary heart disease		22
Healthy lifestyle		70

● **Encounters with illnesses**: Most of the students encountered sufficient patients with a number of high prevalence cancer and CVD illnesses [Table 2], e.g., colon cancer and arteriosclerosis. Students did not encounter sufficient patients with melanoma, lung cancer, prostate cancer, and breast cancer.

● **Acquisition of examining and screening skills for CVD and cancer**: The data revealed that students acquired satisfactory examining skills for CVD as compared to cancer [Table 3]. A third of the students did not acquire sufficient breast or rectal examination skills. Gynecologic examination was acquired by only 40% and, in the case of screening for melanoma, by merely 17% of the students.

Students' basic knowledge of CVD and cancer

A significantly higher number of students demonstrated a better basic knowledge of CVD (62%) than of cancer (34%). Most students were aware of gender differences in CVD but less so of its risk factors. Regarding cancer, only a few students demonstrated specific knowledge of preventable or early detection of cancer, but many more were knowledgeable about common mortality causes in Israel [Table 4].

Evaluation of the students' learning experiences with cancer and CVD

The significant majority of students (59%) assessed the training in CVD as sufficient compared to 49% regarding cancer (indicated as 3 and 4 on the four-point scale). The time spent learning was considered adequate (indicated as 3 and 4 on the four-point scale) by the majority of students (71%) for CVD, but by less than a third (29%) for cancer. The mean of the summation of all the items in the first part of the questionnaire, relating to CVD learning experiences, was significantly higher (*t*-test, *P*<0.01) compared to that of cancer.

Discussion

The study clearly indicates that neither of the medical schools focuses on training students in the preventive behavior of patients, in examining skills for early detection, and in concepts of rehabilitation for CVD patients and even less so for cancer patients. This tendency was revealed in the responses of students at both medical schools. Despite the fact that the Beer Sheva curriculum objectives are geared to training primary care physicians, most of their exposure to patients and learning took place in the hospital and not in the community.

It is evident from the literature that in order for students to internalize concepts of prevention, they must encounter healthy people and not only patients who have already been diagnosed. This objective should be enhanced in community settings, which provide an excellent opportunity to teach epidemiology and population health concepts and where students can acquire screening techniques and practice health promotion on site. Therefore, a shift to training in non-hospital settings is recommended for the medical faculties in Israel.

The results of this study support the need to re-examine the screening tests that students are familiarized with and have acquired during their medical training. For example, 27% of the students had insufficient interaction with breast cancer patients, and 33% reported having insufficient manual breast examination skills. These data call for urgent remediation. The epidemiology of breast cancer in Israel demands that no student leave medical school without enough experience in all aspects of this disease. The same applies to melanoma, which is prevalent in Israel due to its climate. The knowledge that students demonstrated in this study supports the notion that CVD is taught more thoroughly than cancer.

In addition to the above findings, the students assessed their learning experiences with CVD and the time allotted to CVD in the curriculum, as compared to cancer, to be superior. This information mandates a deeper look into the needs and solutions than merely increasing the amount of time allocated to cancer and oncology; improvement in the quality of the training is also sorely needed. Given the already loaded curriculum and recent trends in medical education of reducing the teaching hours and restructuring the traditional curriculum, the educational planners will have to find new ways to implement training in this area For example, in the pre-clinical years, the issue of prevention and rehabilitation could be introduced as part of the problem-based learning approach. The curriculum could include problems of cancer patients, which demonstrate psychosocial aspects of the disease (as part of the behavioral sciences course), as well as early exposure to patients. Basic skin examination and breast examination could

be introduced into the physical examination course. In the clinical phase, since a clerkship in oncology is not required, integration of preventive measures, training in examining skills for early detection and more exposure to palliative treatments should be included in other required clerkships, especially in community settings. These steps will help deliver the message of the importance of a healthy lifestyle, prevention, and early detection skills, rehabilitation and palliative treatments as part of the training of the future physician.

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