

Recognizing and Treating Anal Cancer: Training Medical Students and Physicians in Puerto Rico

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Objective: This training activity aimed at increasing the knowledge of anal cancer screening, diagnostic and treatment options in medical students and physicians, to determine the interest of these individuals in receiving training in the diagnosis and treatment of anal cancer, and to explore any previous training and/or experience with both anal cancer and clinical trials that these individuals might have.

Methods: An educational activity (1.5 contact hours) was attended by a group of medical students, residents and several faculty members, all from the Medical Sciences Campus of the University of Puerto Rico (n = 50). A demographic survey and a 6-item pre- and post-test on anal cancer were given to assess knowledge change.

Results: Thirty-four participants (68%) answered the survey. Mean age was 29.6 ± 6.6 years; 78.8% had not received training in anal cancer screening, 93.9% reported being interested in receiving anal cancer training, and 75.8% expressed an interest in leading or conducting a clinical trial. A significant increase in the test scores was observed after the educational activity (pre-test: 3.4 ± 1.2; post-test: 4.7 ± 0.71). Three of the items showed an increase in knowledge by the time the post-test was taken. The first of these items assessed the participants' knowledge regarding the existence of any guidelines for the screening/treatment of patients with human papillomavirus (HPV)-related anal disease. The second of these items attempted to determine whether the participants recognized that anal intraepithelial neoplasia (AIN) 2 is considered to be a high-grade neoplasia. The last of the 3 items was aimed at ascertaining whether or not the participants were aware that warty growths in the anus are not necessarily a manifestation of high-grade AIN.

Conclusion: This educational activity increased the participants' knowledge of anal cancer and revealed, as well, that most of the participants were interested in future training and in collaborating in a clinical trial. Training physicians from Puerto Rico on anal cancer clinical trials is essential to encourage recruitment of Hispanic patients in these studies now that the guidelines in anal cancer screening and treatment are on their way to be defined. [*P R Health Sci J* 2013;4:209-212]

Key words: Anal cancer, Educational training, Screening, Puerto Rico

Anal cancer incidence trends are increasing in the United States and other countries (1, 2). In Puerto Rico (PR), incidence rates of anal cancer are higher in women (1.7 per 100,000) than in men (0.9 per 100,000) (3, 4), with increasing trends in men (APC = 3.4%) being seen from 1987 through 2009 (3). Of all worldwide cases, 85% are associated with human papillomavirus (HPV) infection (5), the most common sexually transmitted infection worldwide (6). Similar to other HPV-related malignancies (7, 8), a higher burden of anal cancer has been found in people living with HIV/AIDS than has been detected in the general population (3, 7, 9). There is a demand for an experienced workforce with expertise in the diagnosis and treatment of the anal cancer precursor, high-grade squamous intraepithelial lesion (HSIL) (10). Such a workforce could work toward reducing the burden of anal cancer in the general population as well as in high-risk populations,

such as HIV-positive individuals and men who have sex with men (3, 7, 11). Currently, there are no national guidelines for

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The authors have no conflicts of interest to disclose.

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anal cancer screening (12), and clinical trials that determine a standard of care in this area are urgently needed (10, 13, 14). Because of the increasing incidence trends and the similarities with HPV-associated cervical disease, a screening protocol has been proposed. This protocol consists of a visual inspection, a digital anorectal examination, and anal cytology (12). At this point in time, because a limited number of professionals are qualified in these techniques, there is an urgent need for more individuals to become trained in them (12). This paper describes a training activity aimed at increasing the knowledge and awareness of anal cancer screening, diagnosis, and treatment in a sample of medical students and physicians in PR, as well as describing their previous training and experience with anal cancer and clinical trials.

Materials and methods

In March 2013, as part of the *Capacity Building for HIV-HPV Clinical Trials Recruitment Among Minority Underserved Populations of Hispanic Origin* project, we conducted an educational activity (1.5 contact hours) with medical students and physicians at the Department of Internal Medicine of the Medical Sciences Campus (MSC) of the University of PR (UPR) entitled “HPV-Related Anal Conditions: Epidemiology, Screening, and Treatment.” The activity consisted of a conference led by an infectious disease specialist, trained in high resolution anoscopy (HRA) and colposcopy, who spoke about 1) the epidemiology of HPV in anal cancer, 2) anal cancer and related risk factors, and 3) screening, diagnosis, and treatment options. A survey was administered to the participants to gather information on their 1) demographic characteristics, 2) previous experiences with willingness to participate in future clinical trials, and 3) previous training in anal cancer. Also, a 6-item pre-test and post-test were administered prior to and after the training, respectively, to determine their previous knowledge of anal cancer for a later assessment of how the activity impacted their knowledge of this subject. Descriptive statistics were used to describe the study sample. McNemar’s test was used to explore differences between the participants’ knowledge of specific items about anal cancer before and after the activity. A paired t-test was performed to determine whether there were significant differences between the average scores that were obtained on the pre-tests and those that were obtained on the post-tests; a Shapiro-Wilk test was used to assess normality. This project was approved by the Institutional Review Board (IRB) of the UPR MSC.

Results

A total of 50 medical students and physicians participated in the activity, and 34 (68%) of them answered the survey. The mean age of the participants was 29.6 ± 6.6 years; the majority were male (55.9%), with 17.6% being medical students, 67.6%

being residents, and 14.7% having faculty positions. More than half (52.9%) had never participated in any kind of clinical trial during their training, while 75.8% were interested in leading and/or conducting a clinical trial in the future. Regarding anal cancer, 57.6% had not received any anal cancer medical training, 78.8% had not received any training on screening methods, and 93.9% were interested in receiving future training on anal cancer (Table 1).

Table 1. Characteristics of the physicians and medical students surveyed at the training activity (n = 34).

Characteristics	Total (%)
Sociodemographics	
<i>Gender</i>	
Male	19 (55.9)
Female	15 (44.1)
<i>Age (years)</i>	
<30	23 (67.6)
30-40	7 (20.6)
>40	4 (11.8)
<i>Mean age</i>	29.6 ± 6.6
<i>Current educational or professional level</i>	
Medical Student	6 (17.6)
Medical resident	23 (67.6)
Faculty/Attending	5 (14.7)
Clinical trials experience	
<i>Did you participate in clinical trials during your medical training and/or postgraduate training?</i>	
Yes	14 (41.2)
No	18 (52.9)
Don't know	2 (5.9)
<i>Have you ever been invited to work as an investigator in a clinical research study or a clinical trial?</i>	
Yes	17 (50.0)
No	16 (47.1)
Don't know	1 (2.9)
<i>Are you interested in leading and/or conducting a clinical trial in the future? (n = 33)</i>	
Yes	25 (75.8)
No	3 (9.1)
Don't know	5 (15.1)
Anal cancer training	
<i>Did or does your medical training include any instruction regarding anal cancer? (n = 33)</i>	
Yes	14 (42.4)
No	19 (57.6)
Don't know	0
<i>Did or does your medical training include any instruction regarding anal cancer screening? (n = 33)</i>	
Yes	5 (15.1)
No	26 (78.8)
Don't know	2 (6.1)
<i>Would you be interested in receiving training on anal cancer and on the screening methods for anal cancer? (n = 33)</i>	
Yes	31 (93.9)
No	2 (6.1)
Don't know	0

A significant mean difference ($p < 0.01$) between the pre-test average score (3.4 ± 1.2) and that of the post-test (4.7 ± 0.71) was observed. Three of the 6 elements showed there to be a noticeably improved level of performance in the post-test compared to such performance in the pre-test ($p < 0.05$). The first of these items assessed the participants' knowledge regarding the existence of guidelines for the screening/treatment of patients with HPV-related anal disease. The second attempted to determine whether the participants recognized that anal intraepithelial neoplasia 2 is considered to be a high-grade neoplasia. The last of the 3 items was aimed at ascertaining whether or not the participants were aware that most high-grade AIN do not necessarily manifest as warty growths in the anal area (Table 2). After the activity, 12 (24%) participants were interested in receiving further training (a shadowing experience on anal cancer screening methods or even a full training in high resolution anoscopy, depending on their level of interest).

Discussion and conclusions

This educational activity addresses an established need (10, 15, 14) for training on anal cancer in a group of health care professionals. Our study evidences a lack of knowledge about this topic among the medical students, residents and faculty, and the need for future training in this area in PR. An important point is that most of the participants did not know that there are currently no national screening guidelines for anal cancer. Therefore, this could stimulate the interest of health care professionals to delve into this topic because of the need to implement prevention and intervention measures for this disease, especially in high-risk populations. One of the study's limitations is that our results may be affected by selection bias since 32% of the activity's participants did not answer the survey.

Future training activities should expand these objectives and provide more in-depth education to additional populations of health care professionals in PR, given that one issue for the implementation of anal cancer screening and treatment

programs is that sufficient health care personnel must be available to perform detection and treatment procedures (15). Thus, these trained professionals will be instrumental to the prevention and control of anal disease. Furthermore, the increased involvement of interested physicians in future anal cancer clinical trials is important (10), particularly if members of the population of PR are to be encouraged to contribute in these studies. This participation is essential if a standard of care for anal cancer screening and treatment is to be adequately defined. In addition, the curricula of medical schools should be evaluated and strengthened so that they will sufficiently cover such topics as clinical trials and anal cancer.

Resumen

Objetivo: Realizar una actividad educativa para aumentar el conocimiento sobre cernimiento, diagnóstico y tratamiento del cáncer anal entre estudiantes de medicina, residentes y facultativos; determinar el interés de los participantes en recibir más preparación en el campo de diagnóstico y tratamiento de cáncer anal; y explorar si los participantes habían recibido adiestramiento anteriormente o si tenían experiencia previa en el área de cáncer anal y de proyectos de investigación clínica. **Métodos:** Se realizó una actividad educativa (1.5 horas) entre un grupo de estudiantes, médicos residentes y profesores del Recinto de Ciencias Médicas de la Universidad de Puerto Rico ($n = 50$). Se administró un cuestionario demográfico y unas pre- y pos-pruebas sobre cáncer anal para evaluar el cambio en conocimiento de los participantes. **Resultados:** 34 (68%) participantes respondieron el cuestionario. La edad promedio fue 29.6 ± 6.6 años, 78.8% no había recibido adiestramiento sobre el cernimiento de cáncer anal, 93.9% tienen interés en entrenamiento de cáncer anal y 75.8% en dirigir o realizar ensayos clínicos. Se observó un promedio más alto en el conocimiento de cáncer anal después de la actividad (pre-prueba: 3.4 ± 1.2 y pos-prueba 4.7 ± 0.71). Tres premisas mostraron un mejor rendimiento en la pos-prueba ($p < 0.05$), éstas evaluaban el

Table 2. Pre- and post-test results regarding the anal cancer-related knowledge of the physicians and medical students surveyed ($n = 34$).

Item	Correct answer	Correctly answered		McNemar's test p-value
		Pre-test n (%)	Post-test n (%)	
1. There are some guidelines approved for the screening and treatment of patients with HPV-related anal disease.	False	9 (26.5)	34 (100)	<0.01
2. Anal intraepithelial neoplasia 2 is considered to be a high-grade neoplasia.	True	21 (63.6)	32 (97.0)	<0.01
3. Most high-grade anal intraepithelial neoplasia manifests as warty growths in the anal area.	False	22 (64.7)	30 (88.2)	0.04
4. Patients with human immunodeficiency virus are up to 40 times more likely to be diagnosed with anal cancer.	True	33 (97.0)	33 (97.0)	>0.10
5. Squamous cell cancers represent a small portion of all cancers of the anus.	False	28 (82.3)	28 (82.3)	>0.10
6. The serotype of the human papillomavirus that is most commonly associated with anal cancer is 18.	False	4 (11.8)	4 (11.8)	>0.10
Average score		3.4 ± 1.2	4.7 ± 0.71	<0.01†

†Paired t-test p-value

conocimiento sobre 1) la ausencia de guías para la detección/tratamiento de pacientes con enfermedades anales relacionadas a VPH, 2) que la neoplasia intraepitelial anal (NIA) 2 se considera neoplasia de alto grado y 3) que la NIA de alto grado comúnmente no se manifiesta a través de verrugas en el ano. Conclusión: Esta actividad aumentó el conocimiento de los participantes, mientras que la mayoría estaban interesados en adiestramiento adicional en cáncer anal y en participar en ensayos clínicos. El entrenamiento y participación de estos médicos en ensayos clínicos va a ser esencial para establecer el cuidado de salud para cernimiento y tratamiento de cáncer anal.

Acknowledgments

The project described was supported by the project titled Capacity Building for HIV-HPV Clinical Trials Recruitment Among Minority Underserved Populations of Hispanic Origin (3U54CA096297-10S1), a supplement within the University of Puerto Rico Comprehensive Cancer Center and The University of Texas MD Anderson Cancer Center (NCI, NHI: U54CA96297 and U54CA96300). The content is solely the responsibility of the authors and does not necessarily represent the official views of the NCI.

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