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An Interactive, Computer-Based Program to Educate Patients About Genital Herpes

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Abstract

Background and Objectives: Education and counseling constitute a substantial portion of management of patients with genital herpes. Innovative methods for education about genital herpes are needed.

Goal: To test the ability of an interactive, computer-based program to educate patients about genital herpes.

Study Design: Persons seeking care at five urban offices were asked to participate. A knowledge test about genital herpes was administered before and after participation. Participants' satisfaction was assessed with a questionnaire.

Results: Four hundred thirty-five participants enrolled, and 428 completed the herpes knowledge test. Of six questions evaluated, a statistically significant increase in the proportion of correct answers was noted on five of six questions. Fifty-one percent of participants answered all the questions correctly after the program, compared with 39% before the program. Satisfaction with the program was very high.

Conclusions: Innovative, computer-based programs can provide education and assist in the management of chronic sexually transmitted infections.

GENITAL HERPES INFECTIONS have become one of the most prevalent sexually transmitted diseases (STDs) in the United States and other developed countries. ¹⁻³ Although most recent estimates of herpes simplex virus type 2 (HSV-2) seroprevalence suggest that more than one fifth of adults in the United States are infected with the virus that causes genital herpes, ¹ only 10% to 25% of those with antibody to HSV-2 have been diagnosed with genital herpes. ⁴⁻⁶ Widespread diagnosis of HSV-2 infection has been hampered by a lack of appreciation for the importance of the infection and the lack of commercially available, inexpensive, type-specific serologic assays. ^{7,8} Furthermore, health providers may be reluctant to diagnose previously asymptomatic patients, as the benefit of such screening has not been established.

Surveys of patients with genital herpes have shown difficulty in obtaining accurate information about genital herpes, as well as lack of satisfaction with the healthcare provider who diagnoses the patient. ⁹ Given the complexities of HSV infection in combination with the recent constraints in healthcare services, it is unlikely that physicians will be able to provide adequate education and counseling to newly diagnosed patients. However, type-specific serologies are about to become commercially available ¹⁰⁻¹² and are likely to be used widely in various clinical settings. Surveys suggest that patients desire to know their HSV serostatus. ^{13,14}

Computer-based education has emerged as a new educational modality in healthcare. Studies performed in patients with diabetes and adolescents at risk for STDs have shown high levels of satisfaction with computer-based programs and gains in knowledge among the participants. ^{15,16} We evaluated the potential of a computer-based, interactive educational program to teach patients about genital herpes.

Methods

Computer Program

An educational program using audio, text, and video components was designed specifically to present information about the epidemiology, biology, and natural history of genital herpes infections. Using a touch-sensitive screen, the participants chose pathways of interest. Three main self-directed pathways were possible, with the length of the program varying from 20 minutes to 1 hour depending on the pathway taken. The content was aimed at patients who had a previous diagnosis of genital herpes, who suspected that they may have genital herpes, or who may be at risk for acquisition of genital herpes. In addition, the program allowed the participant to enter basic demographic and sexual history information that could subsequently be printed out and given to the physician. Additional printed information on genital herpes and other STDs was available at the conclusion of the program. The program was available on a personal computer, which was placed in a private area of the participating clinic.

The content of the program was developed by physicians specializing in herpes care in collaboration with Care Management Division at Glaxo Wellcome, Inc. Before the large-scale testing summarized in this manuscript, 50 patients at one of the clinics evaluated the program. Patients documented comments about the length, content, pathways, and question content. Based on these comments, changes were made to the program content.

Setting and Participants

This study was conducted at five urban medical practices focused on dermatologic or sexually transmitted diseases. During the study period, all patients visiting the clinic were invited to participate, regardless of the reason for their visit. Each participant was given an identification card, which was scanned into the computer; therefore, no identifying information was entered into the program. A seven-question knowledge test about genital herpes was administered before and after the program was viewed. The questions were designed to test the participants' knowledge of the epidemiology, biology, and clinical manifestations of genital herpes. A survey was also used to evaluate satisfaction with the program, including such items as ease of use, content length, and overall satisfaction. The project was approved by the institutional review boards of the participating institutions, and all participants signed an informed consent form.

Statistical Analysis

Analysis of the data was performed using SPSS version 7.5 (SPSS, Inc., Chicago, IL). Nonparametric tests were used to compare the knowledge of participants on the pretest and the posttest. McNemar's test was used to examine the changes in the number of correct and incorrect answers on the individual questions. The Wilcoxon signed rank test was used to examine overall changes in the proportion of correct answers before and after the program. The association of demographic and clinical variables with test responses was examined with chi-square and Mann-Whitney tests. All tests of significance were two-sided, $p < 0.05$. The test contained seven questions, but one of the questions was excluded from analysis, as it was ambiguously phrased.

Results

Four hundred thirty-five participants enrolled in the study. Two hundred twenty (51%) were women, and 215 (49%) were men (Table 1). The mean age was 37 years (range, 18-78 years). Most participants were white (67%); African Americans and Hispanics each comprised 13% of the sample. Forty-eight percent of the participants thought they had genital herpes. The other most common STDs reported were genital warts (19%) and chlamydia (13%). One half of the participants currently had only one sexual partner, and almost half had been monogamous for a year.

Graphic

TABLE 1. Selected Demographic and Clinical Characteristics of Study Participants

Results of the Pretests and Posttests of Knowledge About HSV

Four hundred twenty-eight participants (98%) completed the herpes knowledge test before and after participation in the program (Table 2). The proportion of correct answers on the pretest varied from 63% on question 6 to 90% on question 3. After participation in the program, a statistically significant increase in the proportion of correct answers was noted for all questions except number 5 (Table 2; Figure 1). This question addressed the mode of spread of herpes and required the participants to choose all three potential routes of spread as the correct answer. Despite the fairly high proportion of correct answers on individual test questions, only 39% of participants gave the correct answer to all 6 questions before participating in the program, whereas 14% of participants answered fewer than 4 questions correctly (Figure 2). After the program, 51% of participants answered all 6 questions correctly, and only 2% of participants provided correct answers to fewer than 4 questions. No statistically significant association was found between the proportion of correct test answers and gender, race, educational attainment, or history of genital herpes.

Graphic

TABLE 2. Herpes Knowledge Test Questions

Graphic

Fig. 1. Proportion of study participants answering each question correctly on the pretest and posttest.

Graphic

Fig. 2. Proportion of study participants with correct answers on the pretest and posttest.

Satisfaction Questionnaire

Three hundred thirty-two participants (76%) completed the satisfaction questionnaire. The questionnaire was comprised of 7-point Likert scales and open-ended questions about the program. Overall, satisfaction with the program was rated 6.2 on a scale of 1 to 7 (Figure 3). Most respondents found the program length "just right." Both the content and the presentation of the educational materials were highly rated. Extremely high ratings were also given to the responsiveness of the computer screen to touch and ease of

movement between the screens. Almost 70% of patients felt comfortable with the level of privacy that the computer program provided, but many would have felt less comfortable in a less private surrounding. Although the information presented in the program was not rated as new for many of the respondents, many still found the information to be of interest. Almost half of the participants reviewed the additional educational topics, and 32% requested a printout from the computer. Most participants noted that they would return to the program for additional information.

Graphic

Fig. 3. Results of selected items on the satisfaction questionnaire on a 7-point Likert scale.

Discussion

This study evaluated an interactive, computer-based program on genital herpes for patients presenting for care. The educational message of the program resulted in knowledge gain about pertinent aspects of genital herpes infections. It is of concern that routes of transmission appeared to be among the least understood aspects of HSV infection and the program did not increase knowledge of this particular issue. Initially, the spectrum of clinical manifestations of genital herpes was also not appreciated by the patients, but the proportion with correct answers increased by 44% after the program. Overall, the participants rated the program highly.

The biology of HSV infections is complex, and the large variability in the natural history of genital herpes makes patient education difficult. As genital herpes is a chronic and incurable infection, the diagnosis needs to be accompanied by appropriate counseling. This task is made even more difficult by lack of established methods for prevention of HSV transmission.¹⁷ As a result, the diagnosis of genital herpes can be accompanied by significant emotional distress, which may persist in some patients.^{9,18,19}

Given patients' frequent concern that the diagnosis of herpes will jeopardize sexual relationships or put future partners at risk, patients with genital herpes and their partners need both education about genital herpes and counseling regarding preventative behaviors. Current education of patients with genital herpes is haphazard. Unlike HIV infection, where testing is accompanied by standardized messages, often required by law, HSV diagnosis is often accompanied by minimal education. This likely reflects the difficulty in communicating about sexual health, lack of time to explain adequately the complex issues surrounding HSV transmission and natural history, and patients' distress upon learning the diagnosis. As most people at risk for HSV acquisition are not identified, education and counseling are rarely offered to those patients.

Computer-based programs have been used to collect patient histories,^{15,20} assess health risks,²¹ or present an interactive educational intervention.^{22,23} High-risk sexual behavior appears to be reported significantly more frequently when the interview is conducted by a computer-based program.^{24,25} Several programs have been developed to improve self-care of persons with chronic illnesses, such as diabetes or asthma, or to provide skills to resist participation in high-risk behavior. A recent systematic review of instructional computer programs for educational intervention found 13 randomized clinical trials evaluating the acceptability and usefulness of such programs.²⁶ All but one study found positive results for the interactive programs. Significant improvement has been noted not only in disease knowledge, but also in improved medical outcomes, such as blood glucose control among persons with diabetes.¹⁶

Our study has several limitations. Although we invited participation by all patients who attended the clinics during the time of study, only a self-selected group participated. It is not known whether those who chose not to participate would have benefited less from the program or would have been less satisfied with it. It is also possible that persons who particularly enjoy computer-based activities participated. However, we were encouraged that the proportion of patients enrolled who completed the program was very high (98%). Additional studies on acceptability of the program should be done in other populations. Although we noted a statistically significant knowledge gain, it is not known whether this effect will be long lasting. It is not known whether better understanding of transmission routes of HSV results in change in behavior that may put patients or their partners at lower risk for HSV acquisition.

Chronic sexually transmitted infections have several characteristics that suggest that computer-based education may be particularly effective. First, patients may be less embarrassed when interacting with a computer than with a health care provider, and there may be fewer barriers to communication regarding sexual health. Second, computer-based programs can be viewed repeatedly if patients desire to review the materials, at a minimal incremental cost. Third, as genital herpes causes a chronic infection for which preventative methods are poorly defined, education and counseling accompanied by a behavioral change may be important in preventing further transmission. Lack of time, as well as limited training, may impede physicians from delivering appropriate

messages. Interactive computer-based educational interventions are a new modality that can supplement physician education and assist in management of chronic STDs.

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