Papanicolaou Test in an Urban STD Clinic: The Good and Bad News

José G. Castro, MD
Giovanna Baldarrago, MD
Araceli Moneda, ARNP
Inza Patton, RN

ABSTRACT
The objective of the study was to review Pap test results and follow-ups in an urban sexually transmitted disease clinic in Miami, Florida. We reviewed the results of all Pap tests conducted in the clinic during 2005. All the samples were processed by a single commercial laboratory. We attempted to contact clients with abnormal results other than inflammation to return to the clinic. Results: of the 849 samples, 622 (73.3%) were normal, 211 (24.8%) were abnormal (inflammation 76 (9.0%), ASCUS 68 (8%), and LGSIL or higher 64 (7.5%), and 16 (1.9%) were considered unsatisfactory for cytological interpretation. We were able to contact only 57% of the clients that needed to return to the clinic. The rate of abnormal cervical cytology reported in this clinic in 2005 was well above the national average. A significant fraction, 43%, of clients who had abnormal results were unable to be contacted for follow-up.
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Introduction

Cervical cancer, the most commonly diagnosed malignancy in women under 35 years of age in the United States (Boring, Squires, Tong, & Montgomery, 1994) is caused by human papillomavirus (HPV) infection, the most common sexually transmitted disease (STD) (Cates, 1999; Cogliano, Baan, Straif, Grosse, Secretan, & El Ghissassi, 2005; National Toxicology Program, 2004). Cervical cytological screening using the Papanicolaou (Pap) test is widely accepted as a useful test for detection of cervical cancer and its precursors. The test has been credited as one of the factors associated with the dramatic decrease in the rates of cervical cancer in the United States. The mortality associated with cervical cancer has declined >70% since the inception of the Pap test and implementation of routine cervical cancer screening in most Western countries (National Institutes of Health, 1997). In the United States, invasive cervical cancer incidence decreased by 36% from 1973 to 1991, accompanied by a 42% reduction in the age-specific mortality rate (DiSaia & Creasman, 1993).

Despite widespread availability of screening, women continue to develop cervical cancer. In the United States, 50% of cervical cancers occur in women who have never been screened, and 60% in women who have not been screened in the last 5 years (Singleton & Orr, 1995). STD clinics have been considered important venues for Pap smear screening both because of the association of STD with cervical neoplasia and the fact that women attending such clinics often have poor preventive health-care seeking behavior and/or limited access to health services (Engelstad et al., 2001; Kamb, 1995). Pap tests, however, are not universally available at all public STD clinics in the United States.[10] The overall rate of an abnormal cytology reported in the United States varies from 5% to 6%. Our objective was to review Pap test results and follow-ups in an urban sexually transmitted disease clinic in Miami, Florida.

Methods

*S*etting

The Miami-Dade County Health Department maintains four clinics dedicated to screening and treatment of sexually transmitted diseases. These clinics are strategically located in Miami-Dade County to meet the needs of communities most acutely in need of STD services. These clinics serve predominantly ethnic minorities and less than 25% of the clients have some type of third-party or health insurance coverage. In all these clinics Pap smear tests are routinely offered to all female patients who have not been tested for over one year. The study sample was drawn from patients of the Downtown Clinic (DTSTD), the busiest of the four clinics. Approximately 100 clients per day are seen, of which approximately 35% are women.

*S*tudy Design

We reviewed the results of all Pap tests performed in the DTSTD during 2005. Test results were evaluated using the 1991 revision to the

Bethesda scoring system for cervical cytology by a single commercial laboratory, in this case Laboratory Corporation of America. Results were classified as normal, inflammation, atypical cells of undetermined significance (ASCUS), low grade and high grade squamous intraepithelial lesions (LGSIL and HGSIL), and unsatisfactory samples. Clients with abnormal results other than inflammation were attempted to be contacted to return to the clinic or to receive a referral for specialized gynecological evaluation. Clients unable to be contacted were classified as "no returns." Results were analyzed using descriptive statistics.

Results

From January to December 2005, a total of 849 Pap tests were performed in the DTSTD. Of these 849 samples, 622 (73.3%) were normal, 211 (24.8%) were abnormal, and 16 (1.9%) were considered unsatisfactory for cytological interpretation. In the total number of pap smears, inflammation represented 76 cases (9.0%); ASCUS, 68 cases (8.0%); LGSIL or higher, 64 cases (7.5%). In the analysis of the 211 pap smears that were not normal, 76 (36%) were reported as inflammation, 68 (32.2%) ASCUS, 53 (25.1%) LGSIL, 11 (5.2%) HGSIL, and 3 (1.4%) AGUS (Figure 1). Of the 227 patients that needed to be contacted to return to the clinic for further assessments, 57% returned and 43% were either unreachable or chose not to return. The age distribution of the total 849 Pap smear clients examined is shown in Table 1. Women from 20 to 44 years of age are 667 (78.6%) of the total number tested.

Discussion

The findings of ASCUS rate of 8% and LGSIL or higher of 7.5% in our clinic are well above, up to three times, the rates found in the general population. However these rates are similar to the ones found in other STD clinics (Shlay, McGill, Masloboeva, & Douglas). We also found an inverse association between age and rates of cytological abnormalities (ASCUS or higher) where women 24 years of age or younger had two times or more rates of abnormalities than women older than 30 years of age, as shown in Table 1. These higher rates of cytological dysplasia seen in younger women have been well described (Centers for Disease Control and Prevention, 1994). Potential reasons for higher rates of cervical abnormalities in younger women are: early coitarche; more sexual partners; higher incidence of sexually transmitted infections; higher rate of smoking; and vulnerability of the adolescent cervix to the acquisition of sexually transmitted diseases and initiation of carcinogenesis (Moscicki, Winkler, Irwin, & Schachter, 1989; Shew, Fortenberry, & Amortegui, 1994). On the other hand, despite the expected high prevalence of STDs in the clinic, there was a reasonably low prevalence of inflammation (9.0%). Finally, the rate of unsatisfactory smears in our clinic (1.9%) was above the target rates reported by the College of American Pathologists (0.5-1.0%), (Tauchi-Nishi, Gajda, & Nakimi, 1991) but lower than other STD clinics (3-3.5%) (Campbell, Hewitt, Kowalchuck, Joffres, & Romanowski, 1994; Shlay et al., 1998).

The low follow-up care rate we found (57%) is similar to reported rates in similar settings such as urgent care centers and emergency departments. Low follow-up rates are probably related, in part, to the disruption in the continuity of care between the site of screening and the site of diagnostic and treatment services (Dunn, Jazbec, Awad, & Batal, 2005; Engelstad et al., 2001). To address this problem there is a need to develop new methods for delivering continuity of care in this setting and implementing potential interventions.

In conclusion, we found high rates of cytological abnormalities in this clinic, up to three times the national average. This finding in a setting where the majority of population have limited access to preventive health services, support the incorporation of Pap smear screening into the standard of care for STD clinical practice. It also highlights the need of creative strategies to increase follow-up rates of abnormal Pap smears.

Fig 1

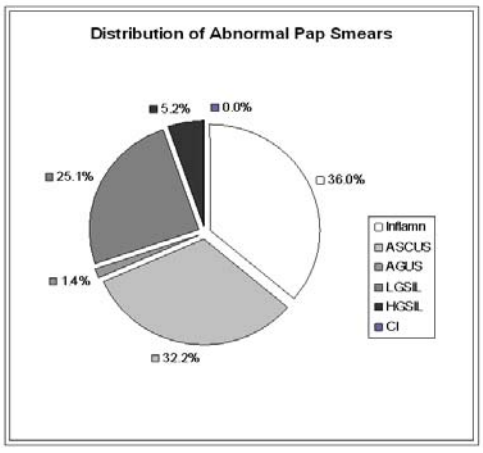

Table 1. Pap Smears - Results by Age

Age Range	Number	Percentage*	Normal + Inflammation%**	ASCUS +/%***
15 – 19	96	11.3%	71 (73.9%)	24 (25%)
20 – 24	245	28.9%	184 (75%)	59 (24.1%)
25 – 29	124	14.6%	105 (84.7%)	16 (12.3%)
30 – 34	114	13.4%	99 (86.8%)	11 (9.6%)
35 – 39	95	11.2%	82 (86.3%)	10 (10.5%)
40 – 44	89	10.5%	77 (86.5%)	10 (11.2%)
45 – 49	50	5.9%	45 (90%)	4 (0.08%)
> 50	36	4.2%	35 (97.2%)	1 (2.8%)
Total	**849**	**99.9%**	**698**	**135**

*Percentage of subjects in age range to the total number.
** Number of subjects with normal Pap+ inflammation result per age interval. Percentage per each age interval.
*** Number of subjects with ASCUS or higher score (LGSIL, HGSIL) in each age interval. Percentage of ASCUS or higher scores within each age interval.

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José G. Castro (JCastro2@med.miami.edu), Araceli Moneda (Araceli_moneda@doh.state.fl.us), and Inza Patton (Inza_patton@doh.state.fl.us) are with the Department of Medicine, Division of Infectious Diseases, University of Miami Miller School of Medicine and Miami-Dade County Health Department, Miami, FL. Giovanna Baldarrago (Baldarragow@belldouth.net) is with Jackson Memorial Hospital, Miami, FL. This paper was submitted to the FPHR on April 24, 2008, revised and resubmitted, and accepted for publication on July 1, 2008. Copyright 2008 by the *Florida Public Health Review*.