

Does Replens® Vaginal Gel Interfere With Tests for Human Papillomavirus and Other Lower Genital Tract Infections?

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Abstract

Objective. The effects of the vaginal lubricant Replens® gel on HPV PCR analysis and other tests for sexually transmissible infections are unknown but are important for interpreting results of prevention trials. We determined if Replens® gel has an inhibitory effect on HPV detection and chlamydia and gonorrhea detection in urine samples.

Methods. Following a clinician-collected cervical samples for HPV (the “pre-gel” specimen), 77 women placed an Ortho® all-flex diaphragm filled with Replens® gel into the vagina followed by an additional vaginal gel application. Participants removed the diaphragm 6 hours later at home and returned to the clinic the following day. At that time, a cervical cytology sample using an Ayers spatula and an endocervical brush was obtained prior to collecting specimens for HPV testing (the “post-gel” specimen). In the laboratory, pre- and post-gel specimens were spiked with 4000 SiHa cells. Specimen adequacy was determined by detection of beta-globin; HPV positivity was determined by real-time PCR using MY09/11 primers. First catch urine samples were obtained pre- and post-gel and were tested for chlamydia and gonorrhea using a commercially available DNA amplification assay. Proportions were compared using 2-sided, Fisher’s exact tests.

Results. Three women did not provide post-gel cervical samples, and 2 did not provide post-gel urine samples. One post-gel spiked sample was beta-globin negative and excluded. Most pre-gel spiked samples (68/77, 88.3%) were HPV-positive compared to 91.9% (68/73) of post-gel spiked samples (p=0.59). No inhibitory effect was noted on any post-gel urine tests for chlamydia and gonorrhea (0/75).

Discussion. Replens® gel does not appear to affect HPV testing or urine nucleic acid amplification testing for chlamydia and gonorrhea. Since we scraped the cervix for cytology before obtaining the post-gel HPV sample, our results need to be cautiously applied to women not having cervical cytology sampling immediately prior to testing.

Background

- The effects of vaginal gels on HPV PCR analysis and other tests for sexually transmissible infections are unknown but are important for interpreting results of microbicide prevention trials
- Results from this study will allow us to verify data being collected in the Methods for Reproductive Health in Africa (MIRA) trial, an ongoing randomized controlled trial to examine the effectiveness of the latex diaphragm with Replens® for HIV/STI prevention

Objective

We determined if Replens® gel in concert with a latex diaphragm has an inhibitory effect on HPV detection in cervical swabs, chlamydia and gonorrhea detection in urine samples, and on adequacy and preservation of cervical cytology samples

Methods

Target population (recruited from San Francisco Bay Area, California)

- English-speaking adult women (age 18-49) who were not pregnant, had not had a hysterectomy, had no signs and/or symptoms of genital infection at the time of enrollment, and were willing to refrain from using intravaginal products during the length of the study



Sample Size: 77

Baseline Visit

- First-catch urine sample
- Clinician-collected cervical sample for HPV (“pre-gel” specimen)
- Diaphragm fitting
- Women inserted Ortho® all-flex diaphragm filled with 2.5 ml of Replens® gel into the vagina plus additional 2.5 ml gel application

At Home

- Diaphragm removed 6 hours later at home

Next Day Visit

- First-catch urine sample
- Cervical cytology sample using Ayers spatula and endocervical brush applied to glass slide
- Clinician-collected cervical sample for HPV (“post-gel” specimen)

Laboratory

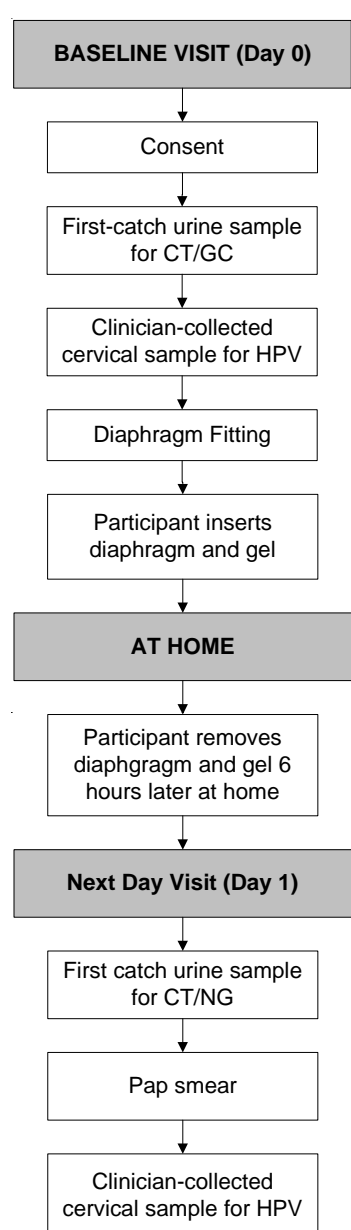
- HPV positivity in pre- and post-gel HPV specimens determined by real-time PCR using MY09/11 primers
- 4000 SiHa cells were added to an aliquot of STM medium prior to DNA extraction, providing the equivalent of 20,000 copies of HPV 16 DNA per ml of sample
- Specimen adequacy determined by detection of beta-globin
- Urine samples tested for chlamydia and gonorrhea using commercially available DNA amplification assay

Analysis

- Pre- vs. Post-gel proportions compared using Fisher’s exact test, 2-sided

Cytological Assessment

- Cervical cytology samples assessed for cellularity, preservation and stain adequacy



Results

Table 1: Demographics of study participants

Number of Participants	77
Age, mean (range)	30 (18 – 52)
Race (self-reported)	
White	60% (46)
Latino	12% (9)
Black	10% (8)
Asian	6% (5)
Identified with more than one	12% (9)
Reported vaginal sex within last 2 weeks	66% (51)

Table 2: Effect of diaphragm and Replens® on HPV detection

	Pre-gel	Post-gel	p-value
Number of Samples	77	74 ¹	
Unspiked HPV Positive	32.9% (25/76) ²	28.2% (20/71) ³	0.59
Post-spike HPV positive	88.3% (68/77)	93.2% (68/73) ⁴	0.40

¹Three women did not provide post-gel samples

²Only samples with a positive beta-globin (BG) signal in the PCR assay were included for analysis of HPV PCR; one pre-gel unspiked sample was BG negative and excluded

³Three post-gel unspiked samples were BG negative and excluded

⁴One post-gel spiked sample was BG negative and excluded

Table 3: Effect of diaphragm and Replens® on CT and GC assay

	Pre-gel	Post-gel
Number of Samples	77	74 ¹
Assay control +	100%	100%
Chlamydia (CT) +	0%	0%
Gonorrhea (GC) +	0%	0%

¹Three women did not provide post-gel samples

Table 4: Effect of diaphragm and Replens® on cervical cytology

Preservation Method	EtOH	Hairspray	TOTAL
Number of Samples	10	64 ¹	74
Cellular Adequacy	100% (10)	98% (63)	99% (73)
Preservation Adequacy	100% (10)	94% (60) ²	95% (70)
Stain Adequacy	100% (10)	100% (64)	100% (74)

¹Presence of lubricant noted on two samples, one had inadequate preservation and one had both inadequate cellularity and preservation

²The difference between preservation adequacy in EtOH and hairspray was not statistically significant (p=1.0)

Summary of Results

- Most pre-gel spiked samples (88.3%) were HPV-positive compared to 93.2% of post-gel spiked samples (p=0.40)
- The differences between the pre-gel and post-gel samples were not statistically significant
- No inhibitory effect was noted on any post-gel urine tests for chlamydia and gonorrhea
- No gel effect was noted in assessment of cellularity and staining adequacy of cervical cytology samples

Conclusion

- Replens® gel does not appear to affect HPV testing, urine nucleic acid amplification testing for chlamydia and gonorrhea, and adequacy and preservation of cervical cytology samples
- Because we scraped the cervix for cytology before obtaining the post-gel HPV sample, our results need to be cautiously applied to women not having cervical cytology sampling immediately prior to testing

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