

MEETING ABSTRACTS

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Use of mobile telemedicine for cervical cancer screening of HIV-positive women in Gaborone, Botswana

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Introduction and aims

Throughout the developing world, delivery of women's health care, specifically cervical cancer screening, is limited by cost and access to trained personnel. Visual inspection with application of 4% acetic acid (VIA) is a practical, inexpensive alternative to cytology-based screening in areas where resources are limited. Mobile telemedicine using a cellular phone to photograph the cervix after VIA allows clinicians in "see and treat" cervical cancer screening clinics to capture high-quality images of the cervix, which can then be transmitted through the cellular network to a gynecology specialist located remotely. We present results of a prospective case-control study evaluating the accuracy of offsite (remote) expert diagnosis using mobile telemedicine photographic images of the cervix with VIA (PIA) in HIV-positive women in Gaborone, Botswana.

Methods and design

ClickDiagnostics has developed software (ClickDoc) specifically for remote diagnosis with the Samsung Soul U900 phone, which comes equipped with a 5 Megapixel camera. Ninety-five women presenting to Bontleng Clinic were enrolled and had (1) VIA evaluation by an onsite clinician, (2) an HPV (human papillomavirus) sample taken for PCR (polymerase chain reaction), (3) cervical photos taken with the Samsung phone camera, and (4) photos evaluated by original onsite clinician and by a remote gynecology specialist blinded to the initial

visit. VIA and PIA results were categorized as "positive," "negative," or "indeterminate." Percent agreement will be calculated for each pair of diagnostic impressions: (1) offsite gynecologist PIA to onsite clinician using VIA, (2) onsite clinician PIA to the same onsite clinician using VIA, (3) offsite gynecologist PIA to onsite clinician PIA. The HPV PCR results will also be compared to VIA findings of the onsite clinician and the PIA findings of the offsite gynecologist.

Results

All 95 subjects have been enrolled and final data analysis is currently under way. Preliminary concordance data will be presented, along with HPV correlation and prevalence data from PCR testing. We hypothesize that there will be significant concordance in the diagnosis of cervical lesions in HIV patients, when comparing the diagnosis of the onsite clinician to the diagnosis of the clinician evaluating the photos through telemedicine.

Conclusions

Women in sub-Saharan Africa often present with advanced cervical cancer, which is a result of poor screening, lack of appropriate referral, and HIV-HPV co-infection. In order to improve the availability of cervical cancer screening in Botswana, we propose the use of mobile telemedicine as an adjunct tool to visual screening techniques for cervical cancer. We aim to show that mobile telemedicine technology is a reliable method for diagnosing cervical lesions compared to in-person gynecological evaluation and that use of this technology has the potential to connect resource-poor cancer screening centers to remotely located gynecologists.

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