

Sexuality, Hormones and the Cervix: The Gateway of infections and cancers

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The clinical connection between sexually transmitted infections including HIV/AIDS and contraception, constitutes a recurring theme of this health issue. It is necessary to emphasize about the incorporation of infection control in the provision of hormonal contraception through the promotion of dual method use (plus condom use). The Human Papillomavirus (HPV) has been notoriously confirmed as the main cause of cervical cancer, which has led to holistic and innovative approaches. Secondary prevention through detection with HPV associated with well established Pap smear cervical screening. Last but not least, primary prevention of cervical cancer (70% protection only!) through vaccination against the most important subtypes (16,18) of HPV.

Involvement of sexually transmitted infections

Cervical cancer, even though a preventable disease, is the first commonest cause of cancer mortality for Thai women. The cervix also plays an important role in the transmission of infections. The cervical cancer has been closely related to the sexually promiscuous, married, multiparity women, and low socioeconomic status. Until the mid-1980's the cervical cancer was suspected to be clinically related to STI's and it was only in the 1980's that HPV was specifically incriminated. By 1980, the concept of the dual method use was already present for promoting both effective contraception and the prevention of STI's.

Cervix: the gateway to the femininity

The cervix act as "The custodian of the upper female genital tract". The cervix is the most studied and the also most abused organ in the female genital tract. The cervical squamocolumnar junction, or so called "Transitional zone of the cervix" has been shown to be the usual site of the organ for both physiological and squamous metaplasia from estrogens during pregnancy and adolescence and squamous cell carcinoma of the cervix. At the time, "A venereally transmitted carcinogenic substance" was incriminated, with the mutagen being "released by the degradation of sperm on the cervical epithelium or may be contained in one or more of the other sexually transmitted substances such as the Herpes simplex virus type II (HSV-2) or Human papilloma virus (HPV)."²

Revival of barrier methods

As Barrier Methods are less effective than Hormonal ones for contraception, spermicides were highly recommended in conjunction with the diaphragm for dual method use. William Shakespeare, the world famous playwright, stated and quoted in the legendary dialogue of the play Macbeth, Act IV, Scene I "Make assurance double sure".

The Health professionals should be aware of the importance of sexual behavioral factors in dual method use.³ Consistent and correct use of the male latex condom is effective for protection against STI's such as HIV, Gonorrhoea, Chlamydia, Herpes simplex virus type 2 (HSV-2) and Syphilis.⁴ It has been concerning and worrying that condom users often discontinue their use with the uptake of hormonal contraception. It is plausible that consistent use of the condom is substantially higher among those using them, as opposed to hormonal methods, primarily for contraception. As nonoxynol-9, a moderately effective spermicide, was thought to be also valuable for the prevention of STI's, it was used for the lubrication of condoms during the manufacturing process. However, nonoxynol-9 leads to disruption of the vaginal epithelium and it was subsequently feared that its frequent use might increase the risk of acquisition of HIV. With evidence that nonoxynol-9 failed to reduce the risk of STI's, including HIV, in the high risk population i.e. drug abusers, homosexuals, the condoms lubricated with nonoxynol-9 are no longer promoted.⁵

Hormonal contraception

Besides causing cervical ectopy, sex hormones could increase the risk of cervical infections through the higher vaginal pH that occurs with a decrease in lactobacilli that produce hydrogen peroxide. Also, sex hormones might either increase the infectivity of certain infectious agents or suppress the immune system with local hormonal dysfunction of the cervix. Progestogens cause both irregular bleeding and thinning of the vaginal epithelium. Finally, there has been concern that hormonal contraception might increase HIV transmission through its increased genital shedding in the vaginal and cervical secretions.⁶

With the ethical imperative to provide individuals with their choice of a contraceptive method, it is impossible to use a randomized controlled trial as the experimental design

to determine causality in the role of hormonal contraception in the acquisition of STI's: an observational prospective cohort study is the most likely approach. Major limitations of studies usually consist of the relatively small number of subjects, inappropriate characteristics of the comparison group and the differential risk of infection for the various subgroups. It is therefore difficult, albeit impossible, for the statistical analyzes to control for confounding factors. Furthermore, the findings might not be applicable beyond the study population: the risks for a specific outcome are usually different for sex workers, patients attending STI's clinics and individuals using family planning services, especially as pertaining to the number of sexual partners and behavioral bias in the selection and utilization of a contraceptive method. The crucial confounding factor might well be the very one that was not thought of. It is reassuring that hormonal contraception was not associated with an increased overall risk for the acquisition of HIV in a recent international multi-centre prospective cohort study⁷ of about 6,000 family planning clinic attendees, although there was an increased risk associated with HSV-2 seronegativity.

Cervical Cancer

cervical carcinoma has an infectious aetiology with the demonstration of the primordial role of HPV, which is present in more than 99% of cases. As HPV is present on both male and female external genitalia, barrier methods have a limited role in preventing transmission. Being largely asymptomatic, HPV infects, albeit transiently, about two-thirds of sexually active women. There is no treatment for microscopic infection by HPV, which may continue to be infectious for a number of years. Types 16, and 18 account for more than two-thirds of cases of cervical cancer, with the addition of types 45,31 and 33 increasing the proportion to 83%. HPV type 6 and 11 are non-oncogenic, but lead to genital warts.

Prophylactic, as compared to therapeutic, HPV vaccines provide protection against new persistent infections and the subsequent development of cervical intraepithelial neoplasia. Those vaccines have been introduced into service delivery and are likely to have their maximal impact

when administered before sexual debut. Therefore, cervical cancer screening will continue to be needed for at least a few more decades until the availability and uptake of multi-valent vaccines that are active against the most important oncogenic HPV types as well as the demonstration of the long-lasting effectiveness of those vaccines.

Implication of services

Regarding hormonal contraception, the limitations and the risk estimates for the acquisition of STI's can be useful for counseling purposes in guiding the utilization of a hormonal contraceptive method.

Condoms provide dual protection from both pregnancy and STI's. However, for those preferring the excellent contraception offered by hormonal methods, dual method use should be promoted for the complementary value of condoms in preventing infections.

A reproductive health approach should be used for the introduction of HPV vaccine to ensure excellent coverage of individuals before their initiation to sexual intercourse. Male vaccination has the potential to decrease female exposure to HPV, thereby accentuating the primary prevention of cervical cancer.

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