

EFFECT OF DIFFERENT METHODS OF CONTRACEPTION
ON THE BACTERIAL FLORA OF THE FEMALE
GENITAL TRACT

Essay

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INTRODUCTION

INTRODUCTION

The control of over population can be achieved by proper family planning programs mainly by the different methods of contraception as hormonal contraceptive pills, intrauterine contraceptive device, barrier methods as condom, diaphragm and sponge as well as spermicides for example creams and vaginal suppositories.

Many comparative studies have been done to compare the different types of flora that dominate in the Female genital tract in association with the various methods of contraception and it was found that the occurrence of anaerobic bacteria in the cervix in women using intrauterine device and oral contraceptives was significantly more common than in women using barrier contraception. The latter technique especially the condom protects against this anaerobic shift and so it maintains the lactobacilli which are the normal flora of the female genital tract.

It was found also that women using intrauterine device had significantly more anaerobic gram positive cocci while those using diaphragm had significantly more aerobic gram negative bacilli (E.coli).

One of the most important side effects of contraception is infection of genital tract as well as urinary tract infection.

Some authors found high incidence of candida albicans in women using oral contraceptive pills. While those using intrauterine device show high incidence of vaginal trichomoniasis and actinomycosis.

Other workers found that the sponge method protect against the two most common sexually transmitted pathogens which are chlamydial, gonorrheal infections. There is higher incidence of vaginal colonization with *Escherichia coli* as well as urinary tract infection in women using diaphragm as a barrier method of contraception.

As regards histopathological changes of the female genital tract, studies of the cytologic changes in the cervical smears of women using IUD, showed greater amount of leucocytes and multi nucleated giant histiocytes which represent a foreign body reaction. But there was no association between IUD use and increased

risk of cervical or endometrial neoplasia either benign or malignant. It was reported that using oral contraceptive pills for prolonged period increased the risk of endometrial and breast carcinoma while protect against ovarian tumours.

Classification of different methods of contraception can be summarised as follows : (Loudon N. 1985)⁽⁷⁴⁾.

- I. Hormonal contraception.
 - 1. combined oral contraceptive pills.
 - 2. Progesterone only pills.
 - 3. Injectable contraceptives.
- II. Intrauterine contraceptive device(IUD).
- III. Barrier methods :
 - 1. Diaphragm
 - 2. Cervical cap.
 - 3. Vault cap.
 - 4. Condoms
 - 5. Contraceptive sponge.
- IV. Spermicides
 - 1. Creams and jellies
 - 2. Vaginal suppositories
 - 3. Foaming tablets
 - 4. Aerosol foams
 - 5. C-films.
- V. Natural family planning :
 - 1. Calendar method.

2. Basal body temprature.
 3. Ovulation method
 4. Symptothermal method.
- VI. Methods related to sexual act:
1. Coitus interruptus.
 2. Coitus reservatus.
- VII. Lactation.
- VIII. Sterilization :
1. Male.
 2. Female.

One of the major factors that influences the usage of each method of contraception is its side effects and complications. (Haukkamaa et al., 1986)⁽⁵⁰⁾. This essay will study the changes of flora of the female genital tract and pelvic infection associated with the most prevalent methods which are intrauterine device (IUD), oral contraceptive pills, barrier methods and spermicides. This will be attained by discussing the pathogenesis of the alternation of flora of female genital tract with each method as well as the pathogenesis of infection occuring with that methods of contraception.

**NORMAL FLORA OF THE FEMALE
GENITAL TRACT**

NORMAL FLORA OF THE FEMALE GENITAL
TRACT

Normal bacterial flora of the vagina and cervix

Normal bacterial flora of the female genital tract has been the field of many researches for along time Slotnick et al. (1963)⁽¹¹⁰⁾ studied this flora in the university of florida, they reported Doderlien's bacillus as being the predominant organism in the normal status of the cervico-vaginal flora. In another study bacterial cultures were obtained from the cervix in 30 healthy women by Gorbach et al., (1973)⁽⁴⁴⁾, obligate anaerobes were isolated from 21 specimens (70%) in combination with aerobic and facultative anaerobic bacteria. Aerobic organisms alone were detected in 8 specimens (27%) and only one specimen was sterile (3%), polymicrobial growth was found in all positive cultures. The most common anaerobes were Bacteroides isolated from 57% of the women examined. This was followed by peptostreptococci (anaerobic streptococci) and veillonella species. These anaerobic flora were

also frequently involved in pelvic infection suggesting that they were potentially pathogenic. Details concerned in individual organisms and their numbers in positive cultures could be clarified by the following tables:

Table (1): Aerobic and facultative anaerobic organisms isolated from cervix of 30 healthy women.

Organism	N.of positive cultures.	% of positive cultures
1. Lactobacilli	22	73%
2. Staphylococcus epidermidis	17	57%
3. Streptococcus species	16	53%
4. Candida species	8	27%
5. Escherichia coli	6	20%
6. Neisseria species	4	13%
7. Proteus mirabilis	3	10%
8. Alkaligenes faecalis	1	3%

Quoted Gorbach et al.(1973)

Table (2): Strict anaerobic micro-organisms isolated from cervix of 30 healthy women.

Organism	N.of posi- tive culture	% of pos- itive culture
1. Bacteroides oralis	6	57%
2. Bacteroides fragilis	5	
3. Bacteroides capillosus	3	
4. Bacteroides species	2	
5. Bacteroides clostridiforms	1	
6. Peptostreptococcus	10	33%
7. Veillonella	8	27%
8. Clostridium bifermentans	2	17%
9. Clostridium difficile	1	
10. Clostridium ramosum	1	
11. Clostridium perfringens	1	
12. Bifidobacterium	3	10%
13. Peptococcus	2	7%
14. Eubacterium	1	3%

Quoted Gorbach et al(1973)⁽¹²⁵⁾.

Swenson et al (1973)⁽¹²⁵⁾ studied the anaerobic flora of the normal vagina. They reported that the anaerobic gram positive cocci (e.g. peptococci, peptostreptococcus anaerobius) were the most common anaerobic flora followed by anaerobic gram positive rods (e.g. lactobacilli, clostridium species and Eubacterium species). Then anaerobic gram negative rods as Bacteroides and Fusobacterium species. They found a low percentage of gram negative cocci (e.g. veillonella parvula and veillonella alcalescens). As regards the aerobic organisms only staphylococcus epidermidis were found. The previous study was followed by that of Marilyn et al(1975)⁽⁷⁶⁾, they examined aerobic and anaerobic bacteria in the normal flora of the genital tract of 100 women prior to hysterectomy for menorrhagia (benign causes) They used modified sturart's transport media for transporting the samples and cultured the specimens both aerobically and anaerobically. They used blood and chocolate agar plates containing vit.K and hemin for anaerobic cultures. The results have shown that all of the 100 cultures were positive for growth. Both aerobic and anaerobic organisms