

Cervical cytopathological and colposcopic findings in women using intrauterine contraceptive device and oral combined contraceptive pills

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Abstract: Objective: to study cervical and pathological findings in women using intrauterine contraceptive device and oral combined contraceptive pills. **Study design:** cross-sectional observational study. **Patients and methods:** This study was conducted in Bab-Elshaaria university hospital (Al-Azhar University) during the period from January 2015 to January 2016. The study included 200 cases of married women in the reproductive age (20-40 years) 100 were using intra uterine contraceptive device (group 1) and 100 were using combined oral contraceptive pills (group 2). All cases have one sexual partner and married for only one time. Each patient was subjected to full history taking, general examination, local gynecological examination, pap smear and colposcopic examination. Results were obtained, tabulated and statistically analyzed. **Results:** no difference between both groups as regard age, parity and duration of marriage. prevalence of inflammatory smears in group 1 was 16% and in group 2 was 9%. As regard to abnormal pap smear prevalence in group 1 was 2 % (L.S.I.L) and in group 2 was 1% (L.S.I.L). colposcopic examination was normal in all cases in both groups. **Conclusion:** The prevalence of abnormal pap smear in Egypt is less than in western community and is comparable with that in other countries. This may be attributed to genetic, cultural or behavioral factors and may be related also to the fact that extramarital sexual relations are prohibited. This study found also that there is no connection between IUD & COCPs and increased risk of cancer cervix. **Recommendations:** national screening programs for detection of cancer cervix through routine pap smears and colposcopic examinations should be done regularly and strictly all over the world with special care to the developing countries to all women of age 20 to 40 years. Also this study recommends that more and more studies about cancer cervix and contraception should be carried out in Egypt.

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Key words: cytopathological, colposcopic, cross-sectional and pap smears.

1. Introduction:

Cervical cancer kills 260,000 women annually, and nearly 85% of these deaths occur in developing nations, where it is the leading cause of cancer deaths in women. It affects women of all age and ethnic groups with high incidence at the age 35-55 years. (*Jhingran, et al. 2013*).

Despite of its high mortality rate cancer cervix is a preventable disease if a screening program is applied for early detection of the disease as cancer cervix is 99% curable if detected in early stages. There is no specific age at which to stop screening for women with a history of cervical cancer or in utero exposure to diethylstilbestrol, and women who are immunocompromised (including those who are HIV positive). (*Eifel PJ, et al 2011*).

Many methods were studied to early detect cancer cervix. the most accurate and dependable methods are: cytopathology, pap smear and colposcopy in addition to HPV DNA testing. Many premalignant lesions and malignant lesions in these

areas have discernible characteristics which can be detected through the examination (*Adam E, et al 1985*).

The risk factors of cancer cervix include: high parity, early age of first intercourse, HPV infection, immunosuppression, smoking, chlamydial infection, overweight, poverty and family history of cancer cervix.

Although the hypothesis that intrauterine device (IUD) use might promote cervical cancer has been considered since the introduction of IUDs in the early 1900s, previous studies are inconclusive.

The long-term use of oral contraceptives (5 or more years) is associated with an increased risk of cervical cancer. (*Anderson, et al.2000*).

Patients and methods

This prospective clinical study was conducted in Bab-Elshaaria university hospital (Al-Azhar university) during the period from January 2015 to January 2016.

The study included 200 cases of married women in the reproductive age 100 were using intra uterine contraceptive device and 100 were using combined oral contraceptive pills.

All cases have one sexual partner and married for only one time.

Inclusion criteria:

1. Age: from 20 to 40years old females
2. Marital status: married women only
3. Contraception: using either IUD or COCPs

Exclusion criteria:

1. Age: above 20 years old or lower than 20 years old.
2. Marital status: not married.
3. Contraception: not using contraceptive method or using any other contraceptive method other than IUD or COCPs.
4. History of abnormal pap smear.
5. Multiple sexual partners.

2. Methods:

Each patient was informed about the study and verbal consent was obtained.

Each patient was subjected to the following:

- 1-full history taking with special emphasis on:
 - age of the patient.
 - duration of marriage.
 - parity.
 - single or multiple sexual partners.
 - contraceptive history, includes type and duration of usage.
 - main complaint.
 - menstrual history.
 - History of colposcopic examination and cervical cytopathology.
 - family history with special concern to gynecological disorders.
- 2-general examination: with special emphasis on signs of malignancy, weight loss, lymph nodes enlargement and abdominal swellings.
- 3-local gynecological examination: including bimanual examination with special comment on mobility and size of cervix then cusco speculum examination was done with comment on morphology of cervix and any apparent lesion seen.
- 4-cytopathological examination: the smears were taken using the Ayre's spatula. Smears were spread on a glass slide and immediately immersed in 95% alcohol then sent to pathologist for staining and examination.

5- coploscopy:

It was done for every case and done using th Olympus Model OCS-2 colposcope in the colposcopy unit at Bab El-shaaria teaching hospital. Examinations were done by expert colposcopists. most examinations were done with the X16 and X25 magnifications.

although others were used when required. the patient was placed in lithotomy position on a movable table.

Preliminary examination was done without application of any solution or lubricant and comment on the nature of the lesion if present. The cervix was washed by normal saline solution and examined directly and with green filter for examination of the vascular pattern.

The cervix was then painted with 3% acetic acid solution (expanded colposcopic examination).

A comment on:

- pattern and aperance of original epithelia.
- vascular pattern of original epithelia.
- identification of all the transformation zone and squamo columnar junction.
- identification of any suspicious area which may corresponds to:
 - o acetowhite epithelium.
 - o punctuation pattern whether coarse or fine.
 - o mosaic pattern.
 - o atypical vascularity.
- presence of any other colposcopic findings e.g. ulceration, polyps...etc.

Then the cervix was painted with lugol's iodine solution.

Iodine solution staining was recorded as positive (non-staining) or negative (full staining) or equivocal test (partial staining) e.g, if an area is not stained with iodine (iodine negative area), the test is positive. the iodine test was useful in identifying the margins of transformation zone and suspicious lesions.

6-colposcopically directed biopsy: it was obtained by punch biopsy forceps from suspicious area wherever these were located. hemostasis was secured by compression of the biopsy site with sterile gauze or rarely with diathermy electrode. One or more biopsies were obtained from each patient. Specimens were preserved with 10 % formaline solution and sent for examination by pathologists.

7-results were obtained, tabulated and statistically analyzed. in the aim of evaluating and comparing the accuracy of cytology and colposcopy, the sensitivity and specificity tests were applied for each. Also the predictive value of positive results was calculated.

Sensitivity test:

It is the ability of a diagnostic procedure to identify correctly those who have the disease. It is calculated as the percentage of number of true positive cases divided by total number of the disease cases (the sum of the true positive and false negative).

Specificity test:

It is the ability of a diagnostic procedure to identify correctly those who do not have the disease. its calculated as the percentage of number of true negative cases divided by the number of all cases who

do not have the disease (the sum of false positive and true negative cases).

Predictive value of positive results:

Which is the proportion of the true positive among all those who have positive results. it is calculated as the percentage of true positive results divided by true positive and false positive results.

3. Results:

Cases were selected in the child bearing age...and in this study we notice that in group1 (using IUD) the age ranges from 20-39 years with a mean age of 29.45 years.

And in group 2 (using Cocps) the age ranges from 21-40 years with a mean age of 30.26 years. And it was found that there is no statistical significance.

Table (1): Demographic results:

Groups	Age				T-test	
	Range	Mean	±	SD	t	P-value
IUD	20 - 39	29.45	±	3.2	1.557	0.121
COCPS	21 - 40	30.26	±	4.1		

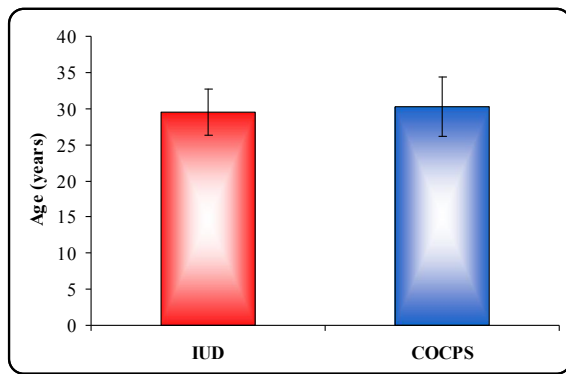


Figure (1): age in both groups

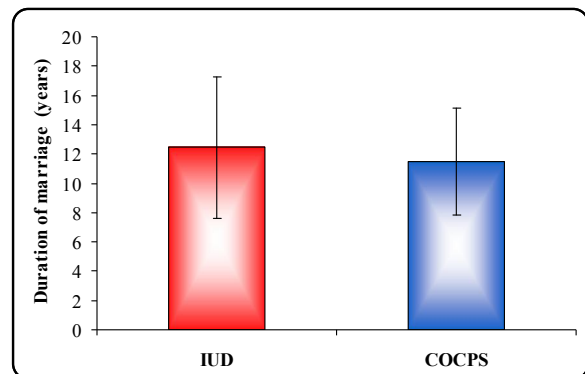


Figure (2): Duration of marriage in both groups

Table (2): Duration of marriage:

Groups	Duration of marriage				T-test	
	Range	Mean	±	SD	t	P-value
IUD	1 - 23	12.45	±	4.85	1.562	0.119
COCPS	3 - 17	11.50	±	3.67		

In group one: The mean duration of marriage was 12.46 years.

In group two: The mean duration of marriage was 11.50 years. And this has no statistical significance.

Table (3): Parity

Parity	Groups							
	IUD (N=100)		COCPS (N=100)		Total		Chi-square	
	N	%	N	%	N	%	X ²	P-value
1	26	26.0	14	14.0	40	20.0	4.500	0.034*
2	53	53.0	47	47.0	100	50.0	0.720	0.396
3	14	14.0	20	20.0	34	17.0	1.276	0.259
4	7	7.0	19	19.0	26	13.0	6.363	0.012*
Total	100	100.0	100	100.0	200	100.0		
Chi-square	X ²	10.557						
	P-value	0.014*						

Table (4): Duration of contraception use

Groups	Duration of contraception use				T-test	
	Range	Mean	±	SD	t	P-value
IUD	1 - 3	2.06	±	1.15	4.754	<0.001*
COCPS	1 - 8	3.53	±	2.87		

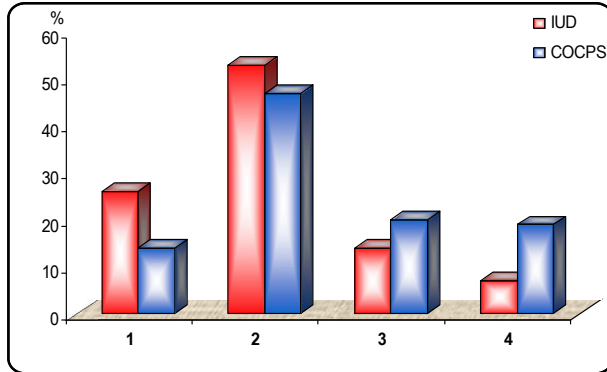


Figure (3): parity in both groups

In group one: The study found that 26% p1, 53% p2, 14% p3 and 7% p4.

In group two: The study found that 14%, p1 and 47% p2, 20% p3 and 19% p4.

From these statistical data we find that women with high parity prefers Cocps rather than IUD and this can be explained due to increase in cesarean sections and IUD insertion becomes more hilarious with previous cesarean sections.

But for women with low parity there is high rate of IUD insertion because of the trend that Cocps may

affect fertility due to hormonal disturbances (in there point of view).

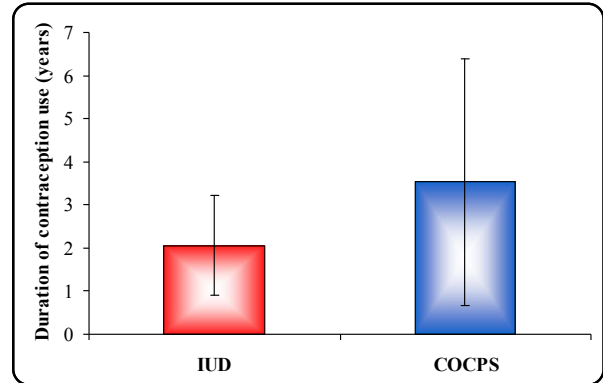


Figure (4): duration of contraception use in both groups

In group one: The study found that it ranges from 1 to 3 years with a mean of 2.06 years.

In group two: The study found that it ranges from 1 to 8 years with a mean of 3.53 years.

And it was found that there is no statistical significance.

Table (5): Colposcopic examination:

Colposcope	Groups					
	IUD(N=100)		COCPS(N=100)		Total	
	N	%	N	%	N	%
Normal	100	100.0	100	100.0	200	100.0
Abnormal	0	0.0	0	0.0	0	0.0
Total	100	100.0	100	100.0	200	100.0
Chi-square	X ²	0.000				
	P-value	1.000				

Table (6): pap smear:

Pap smear	Groups					
	IUD (N=100)		COCPS (N=100)		Total	
	N	%	N	%	N	%
Normal	82	82.0	90	90.0	172	86.0
Abnormal	18	18.0	10	10.0	28	14.0
Total	100	100.0	100	100.0	200	100.0
Chi-square	X ²	1.836				
	P-value	0.175				

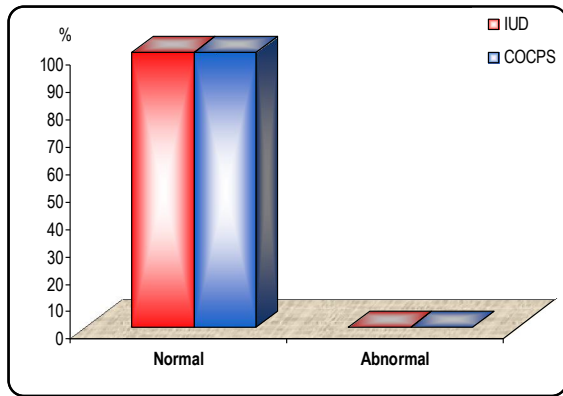


Figure (5): All our patients had normal colposcopic findings

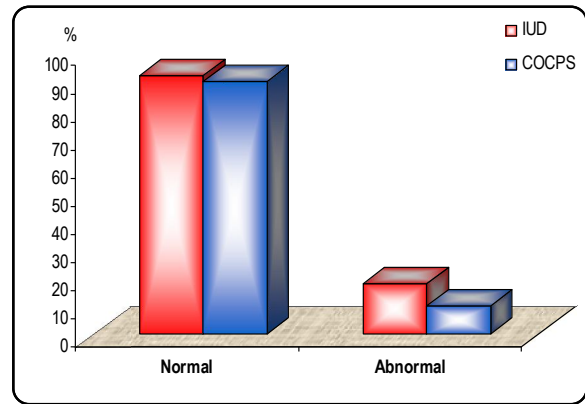


Figure (6): pap smear results in both groups

In group one: 100% of women had normal colposcopic examination.

In group two: Also 100 of women had normal colposcopic examination. And it was found that there is no statistical significance.

Table (7): Abnormal Pap smear

Abnormal Pap smear	Groups					
	IUD (N=100)		COCPS (N=100)		Total	
	N	%	N	%	N	%
Chronic cervicitis	16	16.0	9	9.0	25	12.5
L.S.I.L	2	2.0	1	1.0	3	1.5
Total	18	18.0	10	10.0	28	14.0
Chi-square	X ²	0.008				
	P-value	0.927				

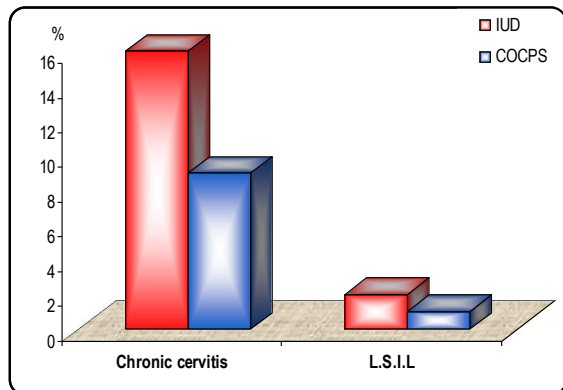


Figure (7): chronic cervicitis vs. LSIL in both groups

In group one: Normal findings were found in 82%, abnormal findings were found in 18% **Abnormal** findings were in the form of:

- Chronic cervicitis....16 %
- LSIL.....2%

In group two: Normal findings were found in 90%, abnormal findings were found in 10 %.

- Abnormal findings were in the form of:
- chronic cervicitis....9%
- LSIL.....1%

Although there is high percentage of chronic cervicitis in women using IUD in this study yet, it's not statistically significant.

4. Discussion:

Cancer cervix is considered the second leading cause of cancer related mortality in women. It affects women of all age and ethnic groups with high incidence at the age 35-55 years. (*Jhingran, et al. 2013*).

In developing countries where no screening programs are implemented the impact of the problem is 5 folds that in developed countries. (*Burkman, et al. 2004*)

The relation between various methods of contraception and cervical cancer & precancerous lesions has been studied but in Egypt the literature is deficient for such studies.

This study was conducted at Bab El sheriya university hospital during the period from January 2015 to January 2016.

Patients were selected from those attending the outpatient clinic for well-woman preconception care.

Women were allocated into two groups.

-Group one: 100 women using IUD.

-Group two: 100 women using COCPs.

As regard demographic and general characteristics, there were no significant difference between the two groups in term of, age, duration of marriage, number of sexual partners, smoking and parity. However COCPs tend to have longer duration of usage in contrast to the pre-study investigator's own expectations.

As regard the pap smear results....

In group (1): abnormal pap smear were found in the form of chronic cervicitis (16%) and L.S.I.L (2 %).

In group (2): abnormal pap smear were found in the form of chronic cervicitis (9%) and L.S.I.L (1%).

The prevalence of epithelial cell abnormality is statistically insignificant in both groups. also infection is statistically insignificant in both groups.

The prevalence of dysplastic changes in this study (2% in group one and 1% in group two) which was lower as compared with other studies performed in industrialized countries.

The prevalence of cervical dysplasia in our study was lower than that of developed countries and this difference is complex and hypothetic but it may be related to sexual behavior in developed countries. As in comparasion to a study done in Romania (from January 2006 to December 2011) the results were (5.9%) had abnormal epithelial changes.

The results of this study are much lower than studies aslo done in Arabic area like that done in Baghda in 2013 and the percentrage of dysplastic changes were 14.5% (*Kawakeb N Abdulla, et al.2013*). Although it's nearly the same culture but in contrast to this study all women selected in Baghdad study were having signs and symptoms (itching,

vaginal discharge, vaginal bleeding etc...) but in this women were selected from those attending well-woman preconception care.

The Bethesda System category of AGUS includes cells of adenocarcinoma in situ as well as cells suspicious for adenocarcinoma of the cervix, which now accounts for (8% - 26%) of primary cervical cancers (*Sadeghi et al., 1999*).

The results of this study are in agreement with others (*Altat F.2001*) (which was 1.28 %), that we do have relatively lower prevalence of cervical carcinoma and cervical lesions, which is most likely related to the sexual behaviors under the Islamic rules. In Egypt, according to Islamic rules, sexual activity typically starts only after marriage, and the cultural and religious traditions of our conservative society restrict the likelihood of multiple sexual partners. However other practices such as male circumcision, which is well established in our country, may play an important role as well (*Altat F. 2001*). And also less percentage of smooking females. For better estimates of the prevalence of cervical disease larger population-based surveys should be conducted. This study also speculate that there may be a different level of interaction between the risk factors determining development of the cervical low and high grade lesions in this region of the world. The low prevalence rate of SIL among Egyptian females with the wide range of age distribution in comparison with other populations should call for further nationwide study of the characteristics of this low risk community.

A good centrally organized cytological cervicovaginal screening program, implemented by the public sector, is recommended. Visual inspection aided via application of acetic acid is an alternative to cytology screening, yet new techniques such as HPV DNA testing can be used to identify cervical lesions without reliance on cytology (Kuhn et al., 2000). This study strongly recommend that sexually active women should undergo routine cervical smear screening because sexually active women are more prone to infection than others.

5. Conclusion:

This study concluded that the prevalence of abnormal pap smear in Egypt is less than in western community and is comparable with that in other arabic countries.

This may be attributed to genetic, cultural or religious factors and may be related also to thae fact that extramarital sexual relations are prohibited.

This study found also that there is no connection between IUD & COCPs and increased risk of cancer cervix.

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