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Research article

The Immune Function of Iraqi Women's on Contraceptives intake

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ABSTRACT: The complement C3 and C4 fractions as well as the cytokines Interferon and Interleukine 6 were estimated in serum samples of women during contraceptive intake. These estimations were made in an attempt to evaluate them as a diagnostic battery for detection of immune status in these women's.

The C3 concentration means were; 154.553 ± 12.084 , 149.816 ± 10.423 , 130.216 ± 6.147 , 159.966 ± 8.583 and 8.125 ± 21.570 mg/dl for pills, depot injection, IUDC, nonusing and virgin controls, respectively.

In comparison C4 levels were ; 42.825 ± 4.293 , 34.583 ± 2.801 , 32.466 ± 3.688 , 33.025 ± 3.025 and 26.441 ± 6.680 mg/dl for pills, injection, IUDC, nonusing and virgin controls respectively. The interferone gama concentration were; 55.169 ± 8.962 , 80.266 ± 3.630 , 66.171 ± 3.973 , 26.499 ± 3.482 and 74.760 ± 2.930 pg/ml accordingly.

The interleukine 6 concentration means were found as; 28.399 ± 8.517 for pills, 36.380 ± 8.63 for injection, 25.733 ± 3.899 for IUCD, 76.499 ± 3.482 for non using women and 91.219 ± 5.001 pg/ml for virgin controls. Thus, they seems to be suitable as an assessment battery for immune status of women on contraception intake.

KEYWORDS:

Statement of Originality of work: The manuscript has been read and approved by all the authors, the requirements for authorship have been met, and that each author believes that the manuscript represents honest and original work.

INTRODUCTION

The functions of human immune system are prone to the effects of various stage of his life span. Among which, youths are of so potent immune function. Adulthood, however, are of relatively less potent functions than youths, life extremes like childhood and senescence are off marks weak immune functions¹⁻⁴. Drug intake in addition may induce either lowering or augmentations of immune functions depending on structure-function relationships, concentration and the drug intake routes⁵⁻⁷. The present work was undertaken to assess; C3, C4, INF⁸⁻¹⁰ and IL6 levels among women using three different contraceptives modalities in comparison to the non using women's and virgin controls, as an attempt to evaluate them as a diagnostic battery for the estimation of an immune functions in these women's.

MATERIALS AND METHODS

DRUGS

Oral progesterone contraceptive pills (German made), progesterone depot injections and copper-progesterone incorporated intrauterine contraceptive device (INCD).

TEST AND CONTROL GROUPS:

Five women groups each of 12 were the test and control groups¹⁰. Oral progesterone contraceptive pills, progesterone depot injection, copper-progesterone incorporated intrauterine device (IUCD), non using and virgin women groups table 1. Subject's history and characteristics were made in table 2. The study was approved by institutional review board.

Table 1. Women study groups.

| Contraceptive Module group | No of subjects |
|----------------------------|----------------|
| Pills | 12 |
| Injection | 12 |
| Intrauterine | 12 |
| Women control | 12 |
| Virgin control | 12 |

Table 2. The characteristics of the study groups.

| Features | Women control | Virgin control | Pills | Injection | IUCD |
|---------------------|----------------|----------------|---------|-----------|---------|
| Age years | 36-52 | 20-9 | 20-39 | 28-42 | 21-32 |
| Weight kg | 46-85 | - | 65-85 | 58-85 | 39-88 |
| Length cm | 150-172 | | 150-165 | 150-165 | 148-167 |
| No. of birth | 1-7 | - | 2-6 | 2-5 | 1-4 |
| Miscarriage | 1 | - | 1-3 | 1-2 | 1 |
| Occupation | W* & HK** | | W&HK | W&HK | W&HK |
| Menstruation | DM*** & AM**** | D & AM | D & AM | D & AM | D & AM |
| Duration of therapy | x | X | 2m-5y | 5m-11y | 1m-4y |

*W : working; **HK: House kipper;*** D: during M; **** AM: after M.

SEROLOGY

From each of the test and control groups Table1, 5mL of blood was collected without anticoagulant in plain tubes. Sera were saved in aliquot of 500 L in appendroff tubes at -18C° till use¹¹. 5µL amounts from both test and control women sera were applied separately in to anti C3, anti C4 single radio immune diffusion plates¹². Precipitation rings were measured to the nearest mm and compared to their equivalent concentration values in the leaflet of manufacture. The INF and IL6 were assayed using Elisa techniques, following the manufacturer or instructions. Statistical intergroup differences were measured through LSD test.

RESULTS

Table 3. The complement C3 concentrations levels among women test and control groups

| Test and control groups | C3 concentration mg/dL | | |
|-------------------------|------------------------|--------|--------|
| | Mean | SE | SD |
| Pills | 145.533 | 12.087 | 41.873 |
| Injection | 145.816 | 10.423 | 36.107 |
| IUCD | 130.216 | 6.147 | 21.299 |
| Women control | 159.461 | 8.583 | 29735 |
| Virgin control | 98.125 | 21.510 | 74.723 |

LSDc3 for comparison between the five groups were 1.671 significant 0.05

The mean C4 concentrations for pills, injection and intrauterine device were 42.825 ± 4.293, 34.5833 ± 2.861 and 32.466 ± 3.688 mg/dL respectively as compared to the non contraceptive women's and virgin controls which as 33.0250mg/dL and 26.441 ± 6.680 mg/dl respectively (Table 4).

COMPLEMENT

The progesterone contraceptive pills were showing C3 concentration mean of 154.533±12.087 mg /dL. As compared to those non-contraceptive using women 159.966±8.583mg/dL and virgin control as 98.125±21.57 mg/dL. The progesterone depot injection was showing 149.896 ± 10.423 mg/dL as compared to non-using women 159.966 ± 8.587 mg/dL and virgin control as 98.125 ± 21.57mg/dL. While, the intrauterine contraceptive progesterone device have shown 130.21 ± 6.147 mg/dL as compared to 159.966 ± 8.583 mg/dL and 98.125 ± 21.570 mg/dL respectively in non-contraceptive using and virgin control (Table 3).

Thus, gravidation alone increases C3 & C4 levels as compared to virgin control. However, gravidation-contraceptive decreased C3 concentrations and equivocate gravidation alone in C4 concentration means Table 3 & 4.

Table 4. The complement C4 concentrations levels among women test and control groups.

| Test and control groups | C4 concentration mg/dL | | |
|-------------------------|------------------------|-------|--------|
| | Mean | SE | SD |
| Pills | 42.825 | 4.293 | 14.873 |
| Injection | 34.583 | 2.401 | 9.704 |
| IUCD | 32.466 | 3.688 | 12.775 |
| Women control | 33.0250 | 3.478 | 12.048 |
| Virgin control | 26.441 | 6.680 | 23.570 |

LSDc3 for comparison between the five groups were 1.671 significant 0.05

Cytokines pills and IUCD contraceptive were showing 55.159 ± 8.9, 66.171± 3.2482 pg/ml respectively, while, injection depot contraceptive have shown 80.266±3.630 pg.ml of INF as

compared to non contraceptive and virgin controls as 76.499 ± 3.482 pg/ml and 74.760± 2.930 pg/ml respectively Table 5.

Table 5. The INF γ contraction levels among test and control groups.

| Test and control groups | INF γ concentration pg/ml | | |
|-------------------------|----------------------------------|-------|--------|
| | Mean | SE | SD |
| Pills | 55.169 | 8.962 | 28.340 |
| Injection | 80.266 | 3.630 | 11.481 |
| IUCD | 66.171 | 3.973 | 12.565 |
| Women control | 76.499 | 3.482 | 11.013 |
| Virgin control | 74.760 | 2.930 | 90.260 |

LSD INF γ between the five group was 1.684 significant at 0.05

The IL6 concentration means were, 28.399 ± 8.517, 36.380± 8.863, 25.733 ± 3.879, 76.499 ± 3.494 and 91.219 ± 5.001 for pills, injection, IUCD, women, and virgin control respectively (Table 6).

Thus, contraceptives were of suppressive nature on INF and IL6 levels as compared to controls (Table 5 & 6).

Table 6. The The IL6 contraction levels among test and control groups.

| Test and control groups | IL6 concentration pg/ml | | |
|-------------------------|-------------------------|-------|--------|
| | Mean | SE | SD |
| Pills | 28.399 | 8.517 | 26.934 |
| Injection | 36.380 | 8.863 | 28.028 |
| IUCD | 25.733 | 3.879 | 12.268 |
| Women control | 76.499 | 3.482 | 11.013 |
| Virgin control | 91.219 | 5.001 | 15.814 |

LSD IL6 between the five group was 1.684 significant at 0.05

BIOMETRY

The LSD statistical analyses for the intergroup differences were found to be significant (Table 3-6).

DISCUSSION

The complement components C3, and C4 and the cytokines INF and IL6 have been considered as markers for the immune status of pregnant women^{7,13-18} though information are evident about the immune status of gravida women using contraceptives.

Thus the present work was aimed at using C3, C4, INF and IL6 as a marker for immune status of gravida women using contraceptives.

Thus the present work was aimed at using C3, C4, INF and IL6 as a marker for immune status of gravida women using contraceptives. Such status was checked for women having various forms of contraceptives like pills, depot injection and intrauterine device. Generally, contraceptive therapy was found to be inhibitor¹⁰ for INF and IL6. While were being with variable increasing effects on complement C3 & C4 levels (Table 3-6)

Biometric analysis indicated that there were intergroup statistical significant differences.

Results in table 2-6 shows C3, C4, INF and IL6 are collectively can be of use as a diagnostic battery of markers for judging the immune status of women using contraceptives.

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REFERENCES

1. Finch CE, Kirkwood TBL , 2000, chance Development and Aging, Oxford University Press, Oxford, 3-111.
2. Clark W R, 1999, A Means to An End , The biological Basrs of aging and Death, Oxford University press, Oxford, 3-59.
3. Siegrist C-A, Aspinall R. B cell responses to vaccination at the extremes of age, Nature Reviews Immunology,2009;9 : 185-194.
4. Shnawa IMS, 2014, Immunology of Ageing and Longevity IISTE publications, USA.
5. Salaman J R, Sampson D, 1950. Clinical Immuosuppression, Grume and Stratton, New York.
6. Parslow T G, Stjtes D P, Terr AI, Imbodca JB, 2001, Medical Immunology 10th ed. Large Medical Books, McGraw-Hill, New York, 714-760.
7. Andrcani D, Bompiani G, DiMario U, Faulk WP, Galluzzo A, 1996, Immunobiology of Normal and Diabetic pregnancy, John Wiley and Sons, New York.
8. Theze J, 1998, The cytokine network and Immune Functions, Oxford University Press.
9. Cruse J M, Lewis RE, 1993. Complement today Karger, New York.
10. Ildgruben A K, Sjaberg I M, Marie-Louise K C. Influences of Hormoral contraceptives on the immune cells and thickness of humane vaginal epithelium, Obest Gynecol 2003;102 (3): 571-582.
11. Stevens C D, 2010, Clinical Immunology and serology: A laboratory perspective 3rd ed. F. A. Davis, philadelphia.
12. Mancini G, Carbonara A O, Here mans J F. Immunochemical quantation of antigen by single radial Immunodiffusion , Immunochem1995;2:235-245.
13. Mahdi B M. Role of some cytokine on reproduction, Med. East Fertil. Soc J 2001;16(5):220-223.
14. Red J. G, Simpson N A, Walker R G, Ecomidon O, Shillito J , Gooi H C, Duffy S R, Walker JJ. The carriage of Proinflammatary cytokine gene polymorphism in recurrent pregnancy loss. Am. Rep. Immunol 2001; 45:35-40.
15. Nasu K, Mastasiu N, Narahara H, Tanka Y, Miyakama I. Effect of interferon gamma on cytokine production by endometrial Stromal cells, Human reproduction 1998;13(9): 2598-2601.
16. Adashi E Y. Cytokine mediated regulation of ovarian function. Endocrinol 1989;124: 2043-2045.
17. Spron M B, Roberts A B, 1988, Peptide growth factors are multifunctional Nature 332: 217-219.
18. Clark D A, 1990. Lyrnphokines and cytokines affecting reproductive outcome in Andreani D Bompiani G, DiMario U, Faulk N P, Galluzzt A, Immunobiology of Normal and diabetic pregnancy, John Wiley and sons New York, 79-90.

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