

## Assessment of Fibrinogen Level in Sudanese Women Receiving Oral Contraceptive

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### Abstract:

**Background:** Oral contraceptives have been linked to an increased incidence of thrombovascular disease.

**Objectives:** This study was aimed to assess serum levels of fibrinogen as indicator of thrombosis in women receiving oral contraceptive.

**Material and methods:** This was cross sectional study conducted in Khartoum State -Sudan during the period from December 2014 to September 2015. After signing written informed consent blood specimen was collected from 80 women receiving oral contraceptive as case group and 70 women not receiving oral contraceptive as control group aged from (20-45) years . Data were collected using structural questionnaire. Data analysis was carried out by means of statistical package for social science (SPSS version 16).

**Result:** Case and controls were matched in their basic clinical data. The mean (SD) level of fibrinogen was significantly higher in in women receiving oral contraceptive compared with control group. [3.68

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*(1.9) vs 2.7(.86) P <0.001. Considering the type of contraceptive the combined showed significance difference of fibrinogen in case and control group (3.68±1.9 vs 2.71±0.86) p value <0.001, and when using the progestin type there was no significance difference (3.63±1.8 vs 2.71±0.86) p value= 0.089.*

**Conclusion:** *In this study fibrinogen level was significantly increase in in women receiving oral contraceptive compared with control group ,this suggest that women receiving oral contraceptive were at risk to develop thrombosis.*

**Key words:** Sudanese –Contraceptive-Fibrinogen- Thrombosis

## **INTRODUCTION:**

The use of combined oral contraceptives (containing estrogen and progesterone) is common across the world (1) it utilized to prevent ovulation, implantation and therefore pregnancy (2). Estrogen containing oral contraceptives increase the plasma concentrations of clotting factors II, VII, X, XII, factor VIII, fibrinogen, and thrombin activatable fibrinolysis inhibitor.

Several retrospective epidemiological studies suggest that there is an association between the use of oral contraceptive pills and increased risk of intravascular thrombosis(3) . Oral contraceptives (OCs), also known as “the pill”, are the most popular method of contraception among female adolescents(4). There are two types of oral contraceptives either combined oral contraceptives (COCs), which contain an estrogen and a progestin or Progestin-only contraceptives (POPs), which contain a progestin but no estrogen (5).

Recent studies reported that there were several changes in fibrinogen concentration and fibrinolytic activity after prolonged use of oral contraceptives in African women(1,6). OCP users developed a state of hyper coagulability that was indicated by the significant elevation of plasma fibrinogen level,

factor XII, vitamin K dependent clotting factors and total count of platelets which can lead to thromboembolic episode(7,8)

This study designed to assess fibrinogen in women receiving oral contraceptive in Khartoum state-Sudan.

## **MATERIALS AND METHODS:**

This was cross sectional study done in Khartoum State during the period of December 2014 to September 2015. Eighty women aged from 20-45 receiving oral contraceptive as study group and seventy women not receiving oral contraceptive as control group were enrolled in the study. After signing consent form, 5 milliliter of blood collected in tri sodium citrate container and plasma fibrinogen was measured by using commercial available kits. Data was analyzed by SPSS using T-test. All data will be expressed as mean (-\+) SD.

## **RESULTS:**

Fibrinogen means ( $3.68 \pm 1.9$ ) p value 0.000 shows significant increase in women receiving oral contraceptive compared with control group as shown in table (3-1)

**Table 3-1: comparison of mean (SD) of fibrinogen level among female using oral contraceptives and control group**

Parameter	Cases (n= 80)	Control (N=70)	p.value
Frinoginib	3.7± 1.9	2.7± .86	0.00

**Table 3-2 Comparison of mean (SD) of fibrinogen level among female using combined and progestin type and control group**

Type of treatment	Case	Control	P. value
Fibrinogen in using combined	3.68±1.9	2.71±0.86	0.00
Fibrinogen in using PROGESTIN	3.63±1.8	2.71±0.86	0.089

## **DISCUSSION**

It is a very well known fact that oral contraceptive hormones are widely used in birth control and it is very effective methods. In this study there is significant difference in fibrinogen between women receiving oral contraceptive and women not receiving contraceptive ( $p < 0.001$ ) this agree with study done by Pc Buchan et al(9) and luque lamir etal(10) . There may be due to presence of estrogen in combined oral contraceptive pills that acts as a contributory factor for the significant elevation of the plasma fibrinogen level .These might play an important role in development of hypercoagulability and thromboembolism.

## **CONCLUSION**

From this study it is concluded that the probability of development risk of thrombosis is more in OCP users. It could be used as routine test with other biomarkers. So further studies with large sample size is recommended for more clarification.

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