



## EFFECT OF GREEN TEA CONSUMPTION ON FIBRINOGEN LEVEL AMONG PREGNANT LADIES

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### ABSTRACT

**Background** Fibrinogen is a protein that plays a key role in blood clotting. The formation of fibrin involves several enzymatic steps culminating in the generation of thrombin, which convert fibrinogen to fibrin. Increased levels of fibrinogen have been reported to be associated with thrombosis risk. **Objectives** This study aimed to measure fibrinogen level among pregnant ladies pre and post green tea consumption using clauss method and to evaluate the effect of green tea consumption on fibrinogen level among pregnant ladies. **Materials and Methods** Hundred pregnant ladies were enrolled in this study; age ranged between 18 and 45 years. Baseline fibrinogen level was measured for all the participants, then fifty pregnant ladies were instructed to drink one cup of green tea per day for 30 consecutive days. Venous Blood samples were collected from all subjects in 3.2% trisodium citrate anticoagulant before and after consumption of green tea and fibrinogen level was measured for each sample. Fibrinogen level was measured using Technoclone modified clauss method. **Results** The mean fibrinogen level was found significantly lower in the samples collected after green tea consumption than that of samples collected before green tea consumption (Mean±SD: 258±142 and 255±141 respectively, P.value 0.05). **Conclusion** In summary we conclude that a one cup per day green tea consumption reduce the level of fibrinogen among pregnant ladies

**KEY WORDS:** Green Tea, Fibrinogen.

### INTRODUCTION

Tea, the most common beverage in the world after water, is a leaf of *Camellia sinensis* from the family of Theaceae. Green tea is prepared without the process of fermentation and heating. The process of fermentation of black tea leads to the activation of various enzymes and intensive changes with respect to colour, aroma, and flavor.

These changes are usually desirable for taste. Since green tea is heated before the process of fermentation and the fermentation is not carried out for green tea as it is for black tea, it is not usually suitable for taste with respect to aroma and flavor. However, the consumption of steamed green tea has various beneficial pharmacological effects. Fibrinogen is a protein that plays a key role in blood clotting. The formation of fibrin involves several enzymatic steps culminating in the generation of thrombin, which convert fibrinogen to fibrin. Increased levels of fibrinogen have been reported to be associated with thrombosis risk.

### MATERIALS AND METHODS

This is descriptive case control study was carried out on Khartoum state from December 2016-january2017 on

two groups (Pregnant ladies drinking green tea & Pregnant ladies did not drinking green tea) Baseline fibrinogen level was measured for all the participants. Each recruited into the study instructed to consume steamed green tea for one month (one cup per day). Two and half milliliter (ml) of venous blood was collected in 3.2% tri-sodium citrate from each participant before and after the consumption of green tea; platelet poor plasma was prepared and used for measurement of fibrinogen level. Fibrinogen level was measured using Technoclone modified clauss method (TECHNOCLONE, AUSTRIA). The data were analyzed using statistical package for social sciences (SPSS), version 21. Independent-sample t-test was used to compare the mean fibrinogen level before and after consumption of green tea. A P-value less than 0.05 was considered significant.

### RESULTS

This study was conducted at faculty of medical laboratory sciences, Al Neelain University, Khartoum, Sudan, in the period from december2016-january2017- to evaluate the effect of green tea consumption on fibrinogen level. Hundred pregnant ladies were enrolled in this study; age ranged between 18 and 45 years.

Baseline fibrinogen level was measured for all the study subjects, then fifty women of them consumed one cup of green tea per day for one month, and fibrinogen level was measured again. The results showed that the mean fibrinogen level of the samples taken after green tea consumption was significantly lower than the mean of the baseline samples (Mean±SD: 258±142 and 255±141 respectively, (P.value 0.05) The reduction of fibrinogen level was statistically significant in this group (P.value:0.05).

## DISCUSSION

Fibrinogen is a 340 kDa plasma glycoprotein that plays a key role in coagulation. Upon cleavage by thrombin, fibrinogen is converted to fibrin, which polymerizes into a fibrin network, or clot This study was carried out to evaluate the effect of green tea consumption on fibrinogen level in Sudanese pregnant ladies.

In this study, the mean of fibrinogen level in the samples collected after green tea consumption was significantly lower than that of the samples collected before the green tea consumption, this finding agrees with the findings of study done by F Jalali et al who reported a significant reduction in fibrinogen level after regular consumption of 4g/dl green tea for one month(1).

Another study conducted by de Maat et al in Netherlands among adult smokers reported that, there was no effect of green tea on the level of fibrinogen(1), the difference between our result and their findings may be due to the difference in the studied populations because their study was conducted on healthy volunteers while all our study group were pregnant ladies. Accordingly we recommended that, green tea should be used as a daily routine habit to reduce fibrinogen level and consequently the risk of cardiovascular diseases.

## CONCLUSION

In conclusion, the consumption of one cup of green tea per day for 30 days can significantly reduce the fibrinogen level.

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