Clinical Reports

Serial Changes in Plasma Fibrinogen Concentration and Fibrinolytic Activity in African Women on Oral Contraceptive Pills

A.A. Famodu

Abstract

Several retrospective epidemiological studies suggest that there is an association between the use of oral contraceptive pills and increased risk of intravascular thrombosis. The present study reports on several changes in fibrinogen concentration and fibrinolytic activity after prolonged use of oral contraceptives in African women. Fibrinolytic activity by euglobulin lysis time (ELT) and plasma fibrinogen concentration (PFC) by clot weighing method were assessed among 20 African women who were new users of combined oral contraceptives (OCP). They were tested at pre-treatment and serially at six monthly intervals over a three year period. There was consistently a significant increase in fibrinogen levels ($p < 0.001$) and euglobulin lysis time ($p < 0.001$) with increasing duration of use of oral contraceptive pills. There was a positive correlation between the mean fibrinogen levels and ELT ($r = 0.89$, $p < 0.01$), and a negative correlation between fibrinogen and plasminogen activator content of fibrinolytic system ($r = -0.84$, $p < 0.01$). The mean fibrinogen values during OCP use were substantially higher than at pre-treatment. We conclude that although African women may have a low predisposition to thrombosis, their risk of having fibrin defect is increased after prolonged use of oral contraceptive pills. We suggest a clinical epidemiological study to provide a better understanding of the haemostatic changes observed in African women. (*Afr J Reprod Health* 1997;1(2): 90–95)

Résumé

Les changements sériels dans la concentration du plasma fibrinogène et dans l'activité fibrinolytique des femmes africaines sous contraception orale

Plusieurs études épidémiologiques antérieures suggèrent qu'il existe un lien entre l'usage des pilules contraceptives et l'accroissement des risques de thrombose intravasculaire. L'étude actuelle rend compte de plusieurs changements dans la concentration fibrinogène et dans l'activité fibrinolytique des femmes africaines après leur utilisation prolongée d'une contraception orale . L'activité fibrinolytique mésurée par temps de lyse de l'euglobuline (TLE) et la concentration du plasma fibrinogène (CPF) mésurée par la méthode de la pesée de caillot, ont éte évaluées chez 20 femmes africaines. Cette évaluation s'est faite par série avec des intervalles de six mois durant une période de trois années. Il s'est ensuit de l'emploi prolongé des pilules contraceptives, un accroissement significatif des taux de fibrinogène ($p< 0.001$) et des temps de lyse ($p< 0.001$). Le rapport entre le taux moyen de fibrinogène et le TLE ($r=0.89$, $p< 0.01$) s'est révelé positif, et celui entre le fibrinogène et l' activateur plasminogène contenu dans le système fibrinolytique ($r= 0.84$, $p< 0.01$), s'est révélé négatif. Les taux moyens de fibrinogène étaient substantiellement plus élevés chez les femmes sous contraception orale que les taux temoins (ceux d'avant-traitement). Nous concluons donc que, bien que les femmes africaines semblent avoir une faible prédisposition à la thrombose, le risque de déformation de la fibrine est chez elles multiplié apres l'emploi prolongé de pilules contraceptives. Nous suggérons une étude épidémiologique en milieu clinique afin de mieux comprendre les changements hémostatiques observés chez les femmes africaines. (*Afr J Reprod Health* 1997;1(2): 90–95)

Key Words: *Plasma fibrinogen, fibrinolytic activity, African women, contraceptives*

Department of Haematology, Faculty of Medicine, University of Benin, Benin City, Edo State, Nigeria

and fibrinolytic activity occur simultaneously in the same individual or whether these two changes occur randomly in different women, a correlation analysis was carried out on the data for women on OCPs. There was a significant correlation between fibrinogen and ELT ($r = 0.89$, $p < 0.01$). When the ELT was converted to plasminogen activator content of fibrinolytic system, there was a significant negative correlation between fibrinogen and fibrinolytic activity ($r = -0.84$, $p < 0.01$). The correlation analysis did not confirm that increased coagulability and fibrinolytic activity occur together in the same individual on OCPs, which does not necessarily mean that these changes occur randomly; this result simply fails to establish that they are associated with one another in the same woman.

Fibrinogen levels have been associated with cardiovascular diseases as an independent risk factor.[20,21] The clinical significance of increased fibrinogen with OCP usage awaits further study, especially since fibrinogen behaves as an acute phase reactant protein and is influenced by many environmental factors.

While the use of oral contraceptives may be useful for family planning, we suggest that further clinical epidemiological studies are needed to provide a better understanding of the side effects of OCPs in a population known for its low predisposition to thrombotic complications after prolonged usage.

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