NATURAL ANTICOAGULANTS PROTEIN C AND PROTEIN S IN ACUTE ISCHEMIC STROKE, IN YOUNG ADULTS

Abo Zeid Abd Allah MD
and Anus Abdel Rahman MD*
Neuropsychiatry and clinical pathology* departments ,
Bertha Faculty of Medicine , Zagazig University, Egypt.

Abstract

This study aimed to clarify the relations of the two important natural anticoagulants protein C and protein S to acute ischemic stroke in young adults. The study included 40 patients with acute ischemic stroke (24 males and 16 females) with ages ranged from 22 to 43 years with a mean age of 35.4 ± 7.82 years and 20 healthy subjects of matched age and sex as a control group. We excluded Patients with liver diseases, diabetes mellitus , abnormal lipogram and those receiving oral cutticoagulants . CT brain imaging was done for all patients. The levels of plasma protein C and protein S were determined for patients within 48 hours after stroke onset. There was a significant decrease of plasma protein C (P<0.05) and protein S (P<0.05) levels in patients when compared with control group. There were two cases (5%) with protein C deficiency (59.21±5.8196) and three cases (7.5%) with protein S deficiency (56.34±4.6596). No significant relation was detected between the measured levels and sex of the patients but the female patients had lower levels of plasma protein C and protein S than the male patients. There was no correlation between the two parameters and the different age groups. There was a significant decrease of protein C level in pill users and cardioembolic strokes and no significant correlation between plasma protein S level and the different possible etiologies of ischemic stroke. We concluded that screening for ptotein C and protein S in young people suffering from ischemic stroke could be beneficial and should be encouraged .

Introduction

Although Increasing age is single most important factor forecasts ischemic stroke, stroke is not rare among adolescents young adults (Hart and Miller, 1983). Three percent of cerebral infarctions occur in young adults and the incidence of cerebral infarction is 10 per 100000 anion persons aged 35 to 44 years (Mest-Unger et at, 1994). The most likely cause of stroke was categorized as atherosclerotic disease, cardioembolism, vasculopathy, coagulopathy, haemamatologic derangement or undetermined etiology (Harold et al, 1995). The discovery of natural anticoagulants: protein C, protein S and antithrombin has provided more insight into the etiology of thromboembolic strokes (Philip et al 1986). By inhibiting the clotting cascade at the levels of factors V and VIII , the enzymatically active form of protein C, which is a vitamin. K- dependent plasma zymogen, regulate blood clot formation (Charles, 1983). Protein S is a vitamin K-dependent plasma protein that serves as a cofactor for activated protein C(Walker, 1980).

Miletich et al (1987) reported the that 1/70 of a sample of 5422 that healthy adult blood donors exhibited protein C antigen deficiency and (55-65%). The prevalence of protein S deficiency in the general population is approximately 0.1% (Cooper and Krawczac, 1997). Both protein C and protein S deliciency are . inherited as an autosomas dominant traits (Broekmans et al, 1985). They are diminished in any disorder assodated with vitamin K deficiency, liver diseases and after the administration of cotunarine drugs (Fainoni et al, 1988). Sansalorti, et al 1996) analysed protein C, protein S and antithrombin III in 239 patients with non-embolic stroke and they found deficiency of protein S in 23.5%, protein C in 7.5% and antithrombin III in 3% of cases.

This study aimed to clarify the relations of the two important natural anticoagulants protein C and protein S to acute ischemic stroke in young adults.

Subjects and Methods

Forty patients were included in this study : 24 males and 16 fe-