Vascular Access Thrombosis Is Not Related to Presence of Antiphospholipid Antibodies in Patients on Chronic Hemodialysis

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Dear Sir,

Patients with chronic renal failure (CRF) who require regular hemodialysis, may present vascular access thrombosis [1]. A broad spectrum of possible pathogenic mechanisms has been proposed: hemodynamic mechanisms [2], inherited thrombophilias [3] and immune etiologies. With respect to the latter, antiphospholipid antibodies (aPL) have been studied, but the role of these antibodies in the pathogenesis is controversial [4]. The aim of the present study was to analyze the prevalence of aPL antibodies and its correlation with vascular access thrombotic events.

The studied population consisted of 208 consecutive CRF patients undergoing hemodialysis (112 females and 96 males; 53 ± 18 years; time in hemodialysis was 35 ± 29 months). In 77 patients was possible to collect a second a sample (6–18 months later). The most frequent etiologies were: diabetic nephropathy (20.2%), nephrosclerosis (15.9%) and chronic glomerulonephritis (14.4%). None of the patients had systemic lupus erythematosus (SLE) or other autoimmune disease known to be associated with aPL. All patients had arteriovenous fistula (AVF) as the initial vascular access, use unfractionated heparin and cuprophane membrane filters. The thrombosis of vascular

access was assessed by clinical patterns and flebography. The control group included 110 healthy blood donors and 28 CRF patients without hemodialysis.

Antiphospholipid antibodies were determined by a home made solid-phase enzyme-linked immunosorbent assays (anticardiolipin antibodies, aCL; antiphosphatidylserine antibodies, aPS and anti-beta-2-glycoprotein I antibodies, anti- β_2 GPI); a sample was considered positive when OD₄₀₅ was greater than 3 SD above the average of the normal

controls (cut off). The activity of the antibodies was expressed as the ratio: OD₄₀₅ patient sample/ OD₄₀₅ of cut off. Additionally, the aPL were determined as lupus anticoagulant activity by coagulation assays (dilute tissue thromboplastin inhibition, dTTI and kaolin clotting time, KCT).

Fourteen of 208 patients (6.7%) presented aCL, 10 (4.8%) aPS and 9 (4.3%) anti- β_2 GPI. The prevalences between hemodialysis patients and normal controls were not statistically significant (table 1). In the sec-

Table 1. Anticardiolipin, antiphosphatidylserine and anti- β_2 GPI antibodies in patients undergoing chronic hemodialysis and normal controls

Antibodies	Hemodialysis (n = 208)	Normal controls (n = 110)
Anticardiolipin	14 (6.7)	4 (3.6)
Antiphosphatidylserine	10 (4.8)	3 (2.7)
Anti- β_2 GPI	9 (4.3)	3 (2.7)

Numbers in parentheses denote percentages.
p = NS.

ond sample (n = 77 patients) we found aCL in 6.5%, aPS in 6.4% and anti- β_2 GPI in 5.2%) samples, respectively. Twelve of 77 (15.6%) cases changed comparing the first and second samples, seroconversion or vice versa.

The isotype more frequently found was IgG and the activity of these antibodies (ratio OD₄₀₅ patient/OD₄₀₅ cut-off) was weak in the majority of cases (ratio: <2). Antiphospholipid antibodies with LA activity were not detected.

Other publications have shown a prevalence of 6–37% aCL [5–8]. Valeri et al. [9] found more frequency of aCL IgG in diabetic patients, but it was not the case in our group. Elevated IgG aCL titers correlated with shorter arteriovenous graft survival, but not with AVF survival [8]. In our series 4% of patients presented anti- β_2 GPI antibodies, while other authors found 0–4.4% [4, 10]. None of the hemodialysis patients presented LA, while other authors found 2.2–33.3% [4, 8, 11].

Twenty one of 208 patients presented thrombosis, only 3 (14.3%) of them had aPL. On the other hand, 187 patients did not present thrombosis episodes, whereas 39 (20.9%) presented aPL. Therefore, no association between the presence of antiphospholipids antibodies and arteriovenous fistula thrombosis, was found. Many reasons could explain these findings: (a) The absence of lupus anticoagulant; (b) low frequency and low activity of anti- β_2 GPI, and (c) some positive cases were transient in their reaction profile between the first and second sampling (aCL, aPS and anti- β_2 GPI antibodies). Based on the above observations, it is possible that the presence of aPL antibodies is an epiphenomenon rather than a pathogenic mechanism.

As in other types of thrombosis it is likely that vascular access occlusion, the presence of more than one risk factor in the patients may increase the possibilities of developing thrombosis.

Acknowledgments

We thank Diego Mezzano (Department of Hematology-Oncology, School of Medicine, Catholic University of Chile) for revision of the manuscript. We also thank Rodrigo Moore R, Alex Hernandez A, Marcelo Espinoza (Department of Clinical Biochemistry and Immunohematology, Faculty of Health Science, University of Talca, Chile) for technical help, as well as Ingrid Arce I, Aquiles Jara (Department of Nephrology, School of Medicine, Catholic University of Chile, Santiago, Chile) and Gonzalo Díaz (Nephrology Unit, Internal Medicine, Regional Hospital, Talca, Chile) for allowing us to include their patients in the project.

This study was financed by the Direction of Research of the University of Talca, Chile (Project 454–65).

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