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 \cite{1}. A broad spectrum of possible pathogenic mechanisms has been proposed: hemodynamic mechanisms \cite{2}, inherited thrombophilias \cite{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 \cite{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 arterious venous 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-\(\beta_2\)GPI); a sample was considered positive when OD \(405\) was greater than 3 SD above the average of the normal controls (cut off). The activity of the antibodies was expressed as the ratio: OD \(405\) patient sample/OD \(405\) 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-\(\beta_2\)GPI. The prevalences between hemodialysis patients and normal controls were not statistically significant (Table 1). In the sec-

\begin{table}
\centering
\begin{tabular}{|l|c|c|}
\hline
\textbf{Antibodies} & \textbf{Hemodialysis} & \textbf{Normal controls} \\
 & (n = 208) & (n = 110) \\
\hline
Anticardiolipin & 14 (6.7) & 4 (3.6) \\
Antiphosphatidylserine & 10 (4.8) & 3 (2.7) \\
Anti-\(\beta_2\)GPI & 9 (4.3) & 3 (2.7) \\
\hline
\end{tabular}
\caption{Anticardiolipin, antiphosphatidylserine and anti-\(\beta_2\)GPI antibodies in patients undergoing chronic hemodialysis and normal controls}
\end{table}

Numbers in parentheses denote percentages. p = NS.
ond sample (n = 77 patients) we found aCL in 6.5%, aPS in 6.4% and anti-β2GPI 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-β2GPI 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-β2GPI, and (c) some positive cases were transient in their reaction profile between the first and second sampling (aCL, aPS and anti-β2GPI 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.

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References


