

Correspondence

Intravenous heparin did not prevent exacerbations of hereditary angioedema in a patient on maintenance hemodialysis

To the Editor:

In a recent article concerning the safety and efficacy of inhaled and subcutaneous heparin versus that of placebo in the prevention of hereditary angioedema (HAE) attacks (in the June 2002 issue of *The Journal of Allergy and Clinical Immunology*), Weiler et al¹ demonstrated that commercial heparin (either subcutaneously injected or inhaled) was ineffective in preventing exacerbations of HAE. This conclusion was not in agreement with a previous uncontrolled study which suggested that heparin might be efficacious in preventing HAE attacks.² We have followed for a period of 6 months a patient affected with type II HAE (a positive family history, presence of signs and symptoms, low C4 antigenic level, and low C1-INH functional level) and chronic membranoproliferative glomerulonephritis (C3NeF-positive) who undergoes hemodialysis three times per week. At the time of the study, the patient could not receive danazol treatment for the prophylaxis of HAE attacks because of hepatitis C virus infection. Before the institution of each hemodialysis procedure, the patient's blood was anticoagulated with 5000 IU heparin administered intravenously; the patient therefore received 5000 IU heparin three times per week for the entire period of the study.

As well as in the other (100) patients followed in our Center for the Diagnosis and Treatment of HAE, swelling, difficulty in breathing, and abdominal pain were self-evaluated on a daily basis. Furthermore, either the patient or the investigators could evaluate symptoms throughout each dialysis procedure (4 hours) and during a follow-up period of 3 additional hours. Immunochemical and functional complement C1-INH and C4, complement C3, B and C4 cleavage fragments, classic and alternative pathways' functional activities, peripheral blood differential leukocyte count, and PO₂ were studied before, during, and after hemodialysis. It is known that leukopenia (neutropenia), hypoxemia, and complement activation can occur during hemodialysis and during hemoperfusion, notwithstanding the intravenous administration of heparin before the procedure.³

Despite chronic heparin administration, this patient experienced what were undoubtedly the highest intensity and frequency of HAE symptoms of any patient with HAE who was ever studied by us. Furthermore, leukopenia (neutropenia) and hypoxemia during hemodialysis were much more dramatic in this patient than in other patients undergoing similar hemodialysis procedures who were not affected with HAE. The severity of these manifestations can be ascribed to the concomitant presence in the patient of 3 conditions facilitating and/or causing complement activation (C1-INH deficiency,

C3NeF, and hemodialysis). The failure of intravenous heparin to prevent HAE symptoms in our patient further supports the conclusions of Weiler et al¹ that heparin (either subcutaneously injected or inhaled) is not effective in the prevention of HAE attacks.

Roberto Perricone, MD^a

Caterina De Carolis, MD^b

Luigi Fontana, MD^a

^aUniversity of Rome Tor Vergata

^bASL RMC

Rome, Italy

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Reply

To the Editor:

Perricone et al¹ suggest that they have confirmed our observation that heparin lacks efficacy in preventing exacerbations of hereditary angioedema. Unfortunately, their patient had one other complement disorder—ie, the presence of nephritic factor—that complicated interpretation of the effects of heparin. In addition, they administered only 5,000 units of heparin 3 times per week rather than 10,000 units twice a day, as was the case in our study. Finally, though our study failed to demonstrate a statistically significant difference between subjects who received injected heparin and subjects who received placebo, there was a significant difference between subjects who received injected heparin and subjects who received inhaled heparin.

John M. Weiler, MD

Susan A. Quinn, RN, BSN

University of Iowa

Iowa City, Iowa

REFERENCE

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Antifungal nasal washes for chronic rhinosinusitis: What's therapeutic—the wash or the antifungal?

To the Editor:

Ponikau et al¹ report an impressive improvement, both objectively and subjectively, in patients with chronic rhi-