Anaphylactic reaction during haemodialysis on AN69 membrane in a patient receiving angiotensin II receptor antagonist

Sir,
Biju et al. [1] reported the case of an ESRD patient on a treatment with the AT II antagonist losartan who developed breathlessness, agitation, tachycardia, and hypertension after about 1 h of haemodialysis. Since this episode happened
during the first treatment after the patient had been switched to the AN69 membrane, the authors interpreted the symptoms as anaphylactic and comparable to observations made on patients dialysed on AN69 whilst taking ACE-I.

We have several concerns about the terminology and the interpretation of the described intradialytic incident. The adverse events observed during haemodialysis with AN69 in patients on ACE-I treatment are not due to anaphylaxis. Anaphylaxis is mediated by IgE antibodies and requires a preceding sensibilization. This is the case for the first-use syndrome due to ethylene oxide sterilized dialysers [2]. It does not apply to the described patient who had been dialysed on ethylene oxide sterilized Hemophan\(^2\) dialysers before and after AN69 without problems. In contrast, the anaphylactoid reactions caused by AN69 are mediated by bradykinin that is always generated during the contact of blood with this negatively charged membrane [3]. Due to the inhibition of the kininase II (= ACE) by ACE-I, bradykinin is not cleaved and can accumulate. The resulting anaphylactoid reactions occur during the first 10 min of haemodialysis when bradykinin generation is particularly intense and they are characterized by an often severe hypotension [3,4]. Both moment and pattern of the symptomatology were completely different in the reported case. It is therefore doubtful that the observed adverse event was an anaphylactoid reaction mediated by bradykinin.

Nevertheless we share the authors’ opinion that caution is recommended in patients haemodialysed with AN69 when using angiotensin II receptor antagonists. Since anaphylactoid reactions can occur even in patients not on ACE-I [4,5], the inhibition of angiotensin II, which is a potent vasoconstrictor, may aggravate hypotension.

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5. Parnes EL, Shapiro WB. Anaphylactoid reactions in hemodialysis patients treated with the AN69 dialyzer. Kidney Int 1991;