

Type A reaction by polysulfone membrane dialyzer resolved by changing to triacetate dialyzer

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Introduction: Dialyzer reactions refer to all of the abnormal sequelae resulting from the interaction between blood constituents and the hemodialysis membrane. Type A reaction usually begins in the first few minutes of dialysis, immediately after the return of blood from the dialysis circuit to the patients. Type B reaction is more common and less severe than Type A reaction.

Case report: A 70-year-old female with hypertension and asthma admitted with proteinuria and both leg edema. Initial urinalysis showed proteinuria (3+), hematuria (RBC 20-29/HPF), and urine spot protein/creatinine as 28.4 g/g creatinine. Her serum creatinine, eGFR at admission was 4.03 mg/dl and 11.0 ml/min/1.73 m². The renal biopsy showed a typical membranous nephropathy. She got the immediate immunosuppressive treatment with high dose steroid and cyclophosphamide because of progressive azotemia and massive proteinuria. However, hemodialysis treatment was needed because of uremic symptoms and pulmonary edema. During the first session of hemodialysis, she had immediate hypotension, desaturation, and decreasing lung sound on whole lung fields after initiation of hemodialysis. Hemodialysis was stopped immediately. The serum IgE level was over 2500 U/L. she was transferred to ICU after five minutes of cardiopulmonary resuscitation and intubation in hemodialysis unit. The dialyzer used at the initial dialysis session was a Xevonta Hi15 (Polysulfone membrane) from B-Braun Medical Incorporation (Germany). The dialyzer was sterilized by ethylene oxide, not by formaldehyde. On next day, Hemodialysis membrane was changed to semi-synthetic membrane, FB-150U (Triacetate hollow fiber, Nipro Corporation, Japan). After changing membrane, patient underwent dialysis without hypotension or other problems.

Discussion: This patient had typical type A reaction with polysulfone membrane which was resolved by changing to triacetate membrane. Because it is difficult to predict this reaction, Proper rinsing of the dialyzer, sterilization with gamma irradiation or steam, and pretreatment with antihistamine or steroids is important in patients with previous history of a type A reaction.

