



Adsorption in the management of DOAC intoxications, a new perspective



Francesco Iacono, Onofrio Schillaci, Silvia Di Miceli, Francesca Spica, Carmela Zagarrigo, Gioacchino Li Cavoli, Angelo Ferrantelli.

ARNAS Ospedali Civico Di Cristina Benfratelli U.O.C. Di Nefrologia e Dialisi abilitata ai Trapianti, Palermo, Italy

Introduction

Poisoning from oral direct-acting anticoagulants (DOAC) is a fearful event, since the antidote is not always immediately available. The same goes for digoxin. However, the advent of sorbent cartridges in this field, such as Cytosorb, has allowed us to obtain excellent results in the management of these patients. Below we report our experience with a clinical case.

Methods

We present here a case of a female patient aged 84, with a history of ischemic-hypertensive heart disease complicated by dilated cardiomyopathy with reduced ejection fraction (35%) and episodes of Paroxysmal Atrial Fibrillation, Chronic Kidney Disease stage G4 KDIGO 2012. In pharmacological history Digoxin 0.25 mg/day, Apixaban 15 mg one tablet/day. She arrives in the emergency area for dyspnea and general malaise. Blood tests: Azotemia: 170 mg/dl, Cr/P: 3.6 mg/dl, Potassium: 5.2 mmol/l, INR: 5, APTT: 50 s, Digoxinemia: 3.2 pg/ml. At the E.O. general patient tachypneic, rhythmic cardiac activity with severe bradycardia (40 BPM). Patient with type 1 cardio-renal syndrome with probable DOAC and Digitalis intoxication.

Results

In consideration of the reduced clearance of Digoxin and Apixaban with standard hemodialysis techniques, after positioning of right femoral CVC, we scheduled 24-hour CVVH with Seleparin in continuous infusion (10 IU/h) for 24 hours, Uf: 100 ml/h in association with hemoperfusion with Cytosorb sorbent. After a treatment cycle, we see improvement of clinical parameters, Digoxinemia: 1.7 pg/ml, disappearance of electrocardiographic signs of digitalis impregnation, HR: 60 bpm. Also improved coagulation status with INR: 2.8, APTT: 40s.

Conclusion

Adsorption by means of sorbent cartridges is increasingly present in the panorama of extracorporeal replacement techniques. In particular, Cytosorb, in consideration of its structural characteristics and the degree of porosity, surface and geometry of the polystyrene resin, is a new alternative in the conditions of intoxication and poisoning not responsive to medical therapy. This is particularly true in patients in critical conditions, managing to remove high molecular weight molecules, such as fungal toxins (Aflatoxin from *Amanita Phalloides*) or drugs for which antidotes are not available in the territory (antibody directed towards the fractions of digoxin and Andexanet Alfa for DOACs directed against activated factor X).