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OCCUPIED TUNNELLED VENOUS CATHETER IN HAEMODIALYSIS PATIENTS: RISK FACTORS AND EFFICACY OF ALTEPLASE

Marcela Mendes1, Tricya Bueloni1, Rogerio Oliveira1 and Daniela Ponce1
1Botucatu School of Medicine, Internal Medicine, Botucatu, Brazil

Introduction and Aims: Thrombosis of tunnelled central venous catheters (CVC) in haemodialysis (HD) patients is common and it can lead to the elimination of vascular sites. This study aimed to evaluate the incidence of thrombotic obstruction of tunnelled CVC in HD patients and the efficacy of occlusion treatment with alteplase use, and identify factors associated with thrombotic occlusion.

Methods: It was a prospective cohort study performed in two centres which evaluated the diagnosis and treatment of thrombotic occlusion of CVC in HD patients for 24 consecutive months. The catheter occlusion was defined as the difficulty infusing or withdrawing fluid from their paths. Alteplase dose was infused to fill the lumen of the occluded catheter and remained for 50 minutes. Since there was no obstruction of the catheter, the procedure was repeated.

Results: Three hundred and thirty nine CVC in 247 patients were evaluated and followed, totalling 67,244 CVC/day. One hundred fifty seven patients had only one CVC, 88 patients had two CVC during the study and 2 patients had three CVC. The median age was 58 (47-66) years, patients were predominantly male (54%), with diabetic nephropathy as the main cause of chronic kidney disease (44%), the internal jugular vein as the main site of implantation (82%), and duration of dialysis before CVC implantation of 119 (41.5 to 585.5) days. Eight hundred and fifteen occlusion episodes were diagnosed (12 episodes per 1000 CVCP - day), with primary success with alteplase in 596 episodes (77%) and secondary in 81 cases (10%). In 99 episodes (13%), success was not achieved after the second dose of alteplase. Two hundred and thirty CVC were removed during the study and the removal causes were AVF use in 88 patients (38.3%), infectious and mechanical complications in 89 (38.7%) and 21 (9.1%), respectively and others (transplantation, transfer or death) in 32 patients (13.9%). Adverse effects were also not observed. In the multivariate analysis, we identified the greatest number of days with CVC (OR = 1.02, CI = 1.01-1.04, p = 0.004), the presence of diabetes (OR = 1.560, CI = 1.351-1.894, p = 0.015) and exit site infection (ESI) (OR = 1.567 CI = 1.347-1.926, p = 0.023) as factors associated with obstruction.

Conclusions: Thrombotic occlusion showed frequent mechanical complication in CVC of HD patients. We observed 12 episodes of obstruction/1000 CVC-day, with a high success rate after alteplase use (87%). In the multivariate analysis, the time with CVC, the presence of diabetes and ESI were identified as variables associated with thrombotic obstruction.