Central catheter related venous thrombosis is associated with catheter tip depth

The presence of central vein thrombosis, location, and the depth of the catheter tip was reviewed by two experienced radiologists” Premuzic et al (2018).

Abstract:

INTRODUCTION: The aim of our work was to analyze the incidence of tunneled hemodialysis catheters-related thrombosis in hemodialyzed patients depending on catheter tip depth and position and to evaluate the impact of other established risk factors responsible for development of central venous thrombosis.

METHODS: The presence of central vein thrombosis, location, and the depth of the catheter tip was reviewed by two experienced radiologists. All patients with suspected central venous thrombosis had factor V Leiden, lupus anticoagulant, and cardiolipin antibodies checked (aClgM and aClgG) and were evaluated with cat-scan venography.

FINDINGS: A total of 68 tunneled hemodialysis catheters were analyzed with CT venography for central venous thrombosis. There were no signs of central venous thrombosis when catheter tips were placed in the right atrium. There was significantly higher number of catheter tips located on the vein wall than located centrally in patients with central venous thrombosis. Higher percentage of central venous thrombosis, smaller number of tips placed in the right atrium, higher values of IgM cardiolipin antibodies, and higher number of patients with positive factor V Leiden mutation were found in group of patients with catheter tips located on vein wall.

DISCUSSION: Higher incidence of central venous thrombosis in patients with the catheter tip placed on the vein wall is a consequence of a catheter tip depth proximal of the right atrium. Increased factor V Leiden mutation and aClgM values in these patients should be observed as a result of the vein stasis caused by inappropriate catheter tip depth and localisation.

Reference: