

Abstract:

Central venous catheters (CVC) are extensively used in patients undergoing allogeneic hematopoietic cell transplantation (HCT). In these patients CVC are placed routinely either via the internal jugular vein (IJV) or the subclavian vein (SCV). Purpose of this study was to analyze systematically complications of CVC at different insertion sites in HCT patients. In this retrospective analysis, all consecutive patients (n=56) who received a CVC (n=101) due to allogeneic HCT at our institution from 01/2011 to 06/2013 were included. 3-lumen standard non-tunneled CVC were placed either via the IJV (n=60, 59%) or the SCV (n=41, 41%). Study end points were time to local inflammation at the insertion site and time to fever and a combined endpoint of both variables, central line associated blood stream infections (CLABSI), duration of catheterization, catheter lumen obstruction, deep-vein thrombosis, pneumothorax and catheter-related deaths. The median duration of catheterization per CVC was almost identical for the IJV and the SCV (18 vs. 17 days, ns.). There were no differences in the frequency of CLABSI, deep-vein thrombosis, pneumothorax and catheter lumen obstruction between IJV and SCV-CVC. None of the patients died CVC-related. Local inflammation occurred less frequently (48% vs. 71%, p=0.025) and later (median time to local inflammation 25 vs. 12 days, p=0.01) in IJV vs. SCV-CVCs. There was a trend towards a longer duration until the occurrence of fever for IJV-CVC (20 days) in comparison to SCV-CVC (13 days, p=0.07). In the multivariate analysis, diagnosis of acute leukemia (HR 1.696, p=0.036), SCV-CVC (HR 1.617, p= 0.039) and neutropenic CVC-days (HR 2.477, p=0.01) were identified as risk factors for the occurrence of local inflammation or fever. In contrast to earlier studies on patients without hematologic malignancies, these data demonstrate that CVC placed in the SCV are not superior over IJV-CVC. Moreover, local inflammation occurred earlier and more frequently in patients with SCV-CVC.

Reference:

Heidenreich, D., Hansen, E., Kreil, S., Nolte, F., Jawhar, M., de Gutierrez, A.H., Hofmann, W.K. and Klein, S.A. (2020) Influence of the insertion site on central venous catheter-related complications in patients undergoing allogeneic hematopoietic cell transplantation. *Biology of Blood and Marrow Transplantation*. February 18th. doi: 10.1016/j.bbmt.2020.02.007. (Epub ahead of print).