Abstract:

Background: Autologous and allogeneic hematopoietic stem cell transplantation of cytokine-mobilized peripheral blood stem cells (PBSCs) is increasingly used to treat patients with hematologic disorders. Different types of vascular access have been exploited for the apheresis procedure, including peripheral veins (PV) and central venous catheter (CVC). In some cases, PV access is unavailable. There are few published data on the efficiency and quality of harvesting with different types of vascular access. This study brings out complications and morbidity of this procedure linked to these different access.

Methods: We performed a comparative, retrospective, single-center study of hematopoietic stem cell collection using these two types of vascular access. We compared the efficiency and complication rate for 617 adults apheresis sessions in 401 patients and healthy donors, for PBSC collection via PV or CVC between 2010 and 2016. The quality of the HSC product was evaluated in terms of the total CD34+ count and neutrophil contamination.

Results: The PV and CVC groups did not differ significantly in terms of the quality of the apheresis product, mean ± SD CD34+ cells collected in PV group was 383.1 ± 402.7 × 10e6 and 298.8 ± 372.7 × 10e6 and the level of neutrophil contamination was 21.0 ± 17.8% in the PV group and 20.6 ± 18.4% in the CVC group. The complication rate did not differ between the two groups.

Conclusion: The type of vascular access for apheresis hematopoietic stem cell harvesting must be determined by trained staff. Successful harvesting can be performed via PV then CVC is not needed or not available.

Reference: