

58th World Advanced Nursing and Nursing Practice Congress

August 16, 2021 | Webinar

Volume: 10

The significance of color Doppler ultrasound applied in patients with peripherally inserted central venous catheters (PICC) before extubation: A retrospective analysis of real-world data

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Objectives: By comparing peripherally inserted central venous catheter (PICC)- related complications in real-life patients, we aimed to analyze the significance of color Doppler ultrasound (CDU) applied routinely or once with symptoms of thrombosis before extubation.

Methods: For this retrospective study, patient data from January to December 2019 were collected from an intelligent safe platform for infusion, which was embedded in the hospital information system (HIS). After screening by the inclusion and exclusion criteria, venous therapy liaisons were interviewed regarding the PICC procedures and complications of the enrolled patients. Then, the patient medical records were checked to verify the CDU usage and collect the CDU results. Difficulties in extubation and serious complications, including catheter fracture or pulmonary embolism during or after extubation, were also collected.

Results: Of the 1455 patients, 489 underwent CDU examination before extubation. Among these, thrombosis was detected in 37 (7.6%) patients and only 1 (0.2%) patient without thrombosis experienced difficulties in extubation. No serious complications were observed in the CDU group. Meanwhile, among the 966 patients in the non-CDU group, three (0.3%) faced difficulties and one patient developed symptoms of pulmonary embolism. Furthermore, among patients with thrombosis in the CDU group, the duration of catheter retention was significantly shorter than that in patients without thrombosis (76.65 ± 42.55 vs. 121.04 ± 45.99 days, $P < 0.001$).

Conclusions: After evaluation of their clinical symptoms, patients without symptoms could be directly removed according to conventional procedures, while patients with symptoms should undergo CDU examination before extubation.

Biography

Wenfeng Chen is an associate professor of nursing. She has 30 years clinical experience in a general hospital and specialized in Orthopedic nursing and Oncology nursing. She has published more than 25 papers in reputed journals and has been serving as an head nurse at the Oncology Department in Xiangya hospital of Central South University.

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