

## CVC-related thrombosis in critically ill children

To obtain credit, you should first read the journal article. After reading the article, you should be able to answer the following, related, multiple-choice questions. To complete the questions (with a minimum 75% passing score) and earn continuing medical education (CME) credit, please go to <http://www.medscape.org/journal/blood>. Credit cannot be obtained for tests completed on paper, although you may use the worksheet below to keep a record of your answers. You must be a registered user on <http://www.medscape.org>. If you are not registered on <http://www.medscape.org>, please click on the "Register" link on the right hand side of the website. Only one answer is correct for each question. Once you successfully answer all post-test questions you will be able to view and/or print your certificate. For questions regarding this activity, contact the accredited provider, [CME@medscape.net](mailto:CME@medscape.net). For technical assistance, contact [CME@medscape.net](mailto:CME@medscape.net). American Medical Association Physician's Recognition Award (AMA PRA) credits are accepted in the US as evidence of participation in CME activities. For further information on this award, please go to <https://www.ama-assn.org>. The AMA has determined that physicians not licensed in the US who participate in this CME activity are eligible for *AMA PRA Category 1 Credits™*. Through agreements that the AMA has made with agencies in some countries, AMA PRA credit may be acceptable as evidence of participation in CME activities. If you are not licensed in the US, please complete the questions online, print the AMA PRA CME credit certificate, and present it to your national medical association for review.

Jones S, Butt W, Monagle P, Cain T, Newall F. The natural history of asymptomatic central venous catheter-related thrombosis in critically ill children. *Blood*. 2019;133(8):857-866.

**1. Your patient is a 10-year-old boy who had a central venous catheter (CVC) placed during cardiac surgery for congenital heart disease. On the basis of the prospective cohort study by Jones et al, which of the following statements about the incidence of CVC-related thrombosis (CVC-RT) in a pediatric population and associated risk factors is correct?**

- Ultrasounds of 146 children showed that incidence of acute CVC-RT was 21.9%
- D-dimer and factor VIII were useful predictors of acute CVC-RT and clinically significant postthrombotic syndrome (PTS)
- Cardiac arrest was a risk factor for residual thrombosis 2 years later
- Femoral CVC placement was a risk factor for CVC-RT during admission

**2. According to the prospective cohort study by Jones et al, which of the following statements about mortality, long-term complications, and PTS after CVC-RT in a pediatric population is correct?**

- Approximately one-quarter of children with CVC-RT had long-term complications
- Five percent of children had radiological thrombosis extension at 2-year follow-up
- Only 2 children (1 with symptomatic CVC-RT, 1 with asymptomatic CVC-RT) had clinically significant PTS on 2 recognized PTS scales, but neither had functional impairment
- Of the 4 deaths occurring before follow-up in children with asymptomatic CVC-RT, 3 were thought to be related to thromboembolic or hemorrhagic complications

**3. On the basis of the prospective cohort study by Jones et al, which of the following statements about mortality, long-term complications, and PTS after CVC-RT in a pediatric population is correct?**

- The study findings support the use of anticoagulant treatment in critically ill children with asymptomatic CVC-RT
- The findings warrant a larger confirmatory study of nontreatment of CVC-RT in critically ill children
- The study findings support the use of thromboprophylaxis with unfractionated heparin
- The study findings apply equally to children treated with peripherally inserted central catheters and to those with tunneled CVCs