Use of Four-Factor Prothrombin Complex Concentrate in the Emergency Department

Dear Editor:

As a doctoral candidate, I have conducted extensive research on vitamin K antagonist (VKA) reversal using human 4-factor prothrombin complex concentrate (4-FPCC), compared with traditional reversal using fresh frozen plasma (FFP). I found the article “Use of Four-Factor Prothrombin Complex Concentrate in the Emergency Department: A Review” by Willis and Hall to be comprehensive, thorough, and an overall excellent review. Although existing research has yet to demonstrate improved clinical outcomes with 4-FPCC, the current body of evidence regarding hemostatic efficacy, international normalized ratio (INR) correction time profiles, and thromboembolic complications was well reported.

I would like to contribute to Willis and Hall’s review by further stressing the importance of administering vitamin K whether INR is urgently reversed using 4-FPCC or nonurgently reversed using FFP. Co-administration of vitamin K in both settings prevents rebound increases in the INR and provides sustained reversal of anticoagulation. During urgent VKA reversal using 4-FPCC, vitamin K is expected to maintain factor levels once the effect of 4-FPCC has diminished. As a new treatment modality for urgent VKA reversal, it is essential to remember that 4-FPCC is a combination therapy with vitamin K and not a replacement. Results from a multinational, phase IIIb clinical study by Sarode et al observed that 6 participants (2.7%) who received VKA reversal with 4-FPCC or FFP did not receive any vitamin K supplementation. As nurses who administer 4-FPCC, we need to remember the central role of vitamin K to improve clinical outcomes for our patients requiring VKA reversal.—Erik Woodhouse, BSN, RN, CEN, Staff Nurse, Emergency Department, William S. Middleton Memorial VA Hospital, Madison, WI; E-mail: ewoodhouse@wisc.edu

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Response to “A Comparison of Paper Documentation to Electronic Documentation for Trauma Resuscitations at a Level I Pediatric Trauma Center”

Dear Editor:

I wanted to comment on the article “A Comparison of Paper Documentation to Electronic Documentation for Trauma Resuscitations at a Level I Pediatric Trauma Center.” I am the ED Director at a level IV trauma center and have faced the same issues in using the electronic medical record (EMR) and having a complete trauma chart. My hospital is a part of a multi-hospital healthcare system. In response to concerns of patient safety from incomplete documentation, or documentation in both paper and electronic forms, we established a work group to address the lack of a complete, user-friendly EMR for trauma documentation.

The trauma documentation group designed the record to incorporate all state and national trauma elements. The team included members from various hospitals, the corporate ED council, the EMR company, and corporate information technology services. The group has met twice a month for the past 4 months, and the redesigned system is now ready for testing.

The assessment documentation is based on the Trauma Nursing Core Course (TNCC) flow of A-I systematic nursing assessment, because all trauma center nurses must complete the TNCC course. This previous exposure should provide familiarity with the assessment progression. The initial triage includes airway, breathing, and circulation, plus incident information including the date and time of occurrence, mechanism, arrival method, trauma activation,
and notification by EMS prior to arrival. When a field is selected, it goes to a drop-down box in the next column to choose specific information and so on through a total of 4 drop-down boxes. There are also “other” choices at the bottom of each column to allow additional data to be free texted.

It has been a daunting task to include all potential fields for documentation for a trauma patient. A level II trauma center and I will be testing the new product soon and hope to report success with using only the EMR for documentation in providing a complete record and improving patient safety and outcomes. We will continue to monitor the accuracy of chart documentation and improved continuation of care and look forward to sharing the results.—Ann Quinlan, BSN, RN, Director, Emergency Services, Lake Granbury Medical Center, Granbury, TX; E-mail: Annquinlan1@gmail.com

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REFERENCES

Multidisciplinary Team to Achieve Low Blood Culture Contamination Rates in Health Care Facilities

Dear Editor:

I read with much interest the article “Reducing Blood Culture Contamination Rates in the Emergency Department” by Harding and Bollinger.1 I applauded the authors and their institution for their success. Their report is in contrast to the report by Snyder et al.,2 in which an important parameter is missing in the evaluation—that is, there is no mention of literature detailing the training of non-phlebotomists who may be performing the task. The article by Harding and Bollinger clearly shows the advantages of training and continued quality improvement as a means to lower blood culture contamination rates.

At Carolinas Medical Center (the flagship for a 42-hospital Carolinas Health Care System), which has 900 beds, collection of blood cultures is performed by phlebotomists (~30%), nursing staff (~70%), and ancillary staff (~1%). In 2007 our overall contamination rate was higher than 7%, with a contamination rate greater than 9% in our emergency department.3 By implementing training and getting support from upper level nursing, hospital administration, and physicians, we were able to successfully lower the contamination rate for the hospital to consistently less than 1%, and for nursing to less than 2%. During 2014 the rates have been consistently near 1%, lowering costs and resulting in more effective outcomes.4,5 In addition, the production of a video depicting the proper method of collection was instituted. As stated by Gander et al.,6 poor blood culture collection by non-laboratory personnel may be the result of inadequate training and follow up.7

Since 2008, overall rates for Carolinas Medical Center have fallen from 3.79% to less than 0.96% (P < .0001) and are on a steady downward trend. Inpatient nursing and the emergency department now have rates near 1%. The drop in contamination rate between 2008 and 2014 is apparent, with phlebotomy declining from 2.15% to 0.35%, inpatient nursing from 3.89% to 1.19%, and the emergency department from 5.52% to 1.07%. The ED contamination rate fell the furthest, with P = .0491 between groups for 2014. In 2013 and 2014, there were no statistical differences between inpatient nursing and the emergency department, with P values of .714 and .766, respectively. It is my contention, in agreement with the recommendations of Harding and Bollinger1 and in direct conflict with the recommendations of Snyder et al.,2 that with proper training, dedicated non-laboratory health care staff are capable of achieving this goal.

I thank the following persons for their assistance in this performance improvement process: H. James Norton, PhD, Dickson Advanced Analytics and the Multidisciplinary Team; Laboratory: Susan Grissom, Flow Kerns, Patricia Meech, Robin Miller, Anne O’Dell, Barbara Oxford, Dara Porter, and Andrew Smithen; Nursing: Jeanette Cancellieri, J. Dillard, Robert Leonhardt, L. Murphy, and Grace Sotomayor; and Medical Staff: Drs Jared Block, Stephen Colucciello, Randy Cordle, Robert Heyer, James Horton, Edward Lipford, Lewis McCurdy, Brian Moore, and Kevin Smith.—Robert L. Sautter, PhD, HCLD, CC (ABB), Director of Microbiology and Point of Care, Carolinas Pathology Group, Department of Microbiology, Carolinas Laboratory Network, Carolinas Medical Center, Charlotte, NC; E-mail: Robert.sautter@carolinashealthcare.org

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