Discard Tubes Are Sometimes Necessary When Drawing Samples for Hemostasis

To the Editor

We were interested to read the recent report from Raijmakers and colleagues1 on the issue of discard tubes for specialized coagulation testing. It is interesting that this report appeared in print at the same time as another similar report from Smock and colleagues.2 Raijmakers et al1 assessed the need for a discard tube by performing paired testing for prothrombin time (PT)/international normalized ratio, activated partial thromboplastin time (APTT), antithrombin, protein C, and factors II, V, VIII, IX, and X. They observed some small statistical differences in some tests (ie, APTT, antithrombin, protein C, and factor VIII) but no clinically significant differences and, hence, concluded that their findings “support the new CLSI [Clinical and Laboratory Standards Institute] guideline that a discard tube is unnecessary for routine coagulation assays and provide evidence that drawing a discard tube can also be abandoned for certain plasma-based specialized coagulation tests.”

Smock et al2 performed a similar study and evaluated fibrinogen; D-dimer; factors II, VII, VIII, IX, X, and XI; proteins C and S; and antithrombin. They did not observe any statistically significant changes between the consecutive samples and similarly concluded “drawing a discard tube is not necessary for specialized coagulation testing.” However, whereas Smock et al2 highlighted that the CLSI3 continues to recommend that a discard tube be drawn if a winged set is used (to clear the tubing of air and maintain the proper blood/anticoagulant ratio), Raijmakers et al1 neglected to mention this.

Raijmakers and colleagues1 also failed to report 2 earlier studies in this field. Serin and Bugdayci4 evaluated the need for discard tubes for PT, APTT, fibrinogen, proteins C and S, antithrombin, factor V Leiden, plasminogen, and D-dimer and also found no statistically significant differences between consecutive samples, although protein C almost reached significance, and Lippi and Guidi5 assessed PT, APTT, fibrinogen, and D-dimer using 3 consecutive samples, again without observing any statistically significant differences.

We essentially agree with the conclusions of all of these studies that a discard tube is not normally required for hemostasis testing, but a discard tube is still required when coagulation samples are drawn from a winged set or from intravenous catheters because the large air space in these collection systems leads to underfilling of the first blood collection tube.6 While underfilled coagulation tubes are a cause for rejection,3 our experience indicates that these are sometimes missed by less experienced staff and that preanalytic issues are likely to reflect the greatest cause of errors within hemostasis.7

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The Authors' Reply

We hopefully all agree that the CLSI could abandon its recommendation for drawing a discard tube using standard venipuncture techniques.

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The Authors' Reply

We appreciated the comments from Drs Favaloro and Lippi on our study. We are glad that the findings in our report are in line with those mentioned in their letter.1-3 Together, these articles strengthen the conclusion that drawing a discard tube can be abandoned for coagulation testing.

The hypothesis of our study was that when using today’s collection systems and reagents, a discard tube is not necessary with regard to possible activation of released tissue thromboplastin during venipuncture. Our statement regarding CLSI guidelines and discard tubes is applicable only to the method used in our study. We agree with Drs Favaloro and Lippi that the preanalytic problems of intravenous catheters (ie, heparin contamination) and winged sets (underfilling) could lead to erroneous results and still require a discard tube, but these were not our topics under investigation.

References


Immunohistochemical Staining of Inflammatory Cells in Liver Biopsy Specimens of Patients With Autoimmune Hepatitis, Primary Biliary Cirrhosis, and Overlap Syndromes

To the Editor

I read with great interest the study by Lee et al1 evaluating IgG and IgM immunohistochemical staining of inflammatory cells in liver biopsy specimens of patients with autoimmune hepatitis (AIH), primary biliary cirrhosis (PBC), and overlap syndromes. The authors report an IgG-predominant infiltrate in all cases of AIH. However, a large proportion (12/26) of PBC cases also showed a predominantly IgG+ infiltrate, which would potentially decrease the usefulness of IgM and IgG immunohistochemical staining in this setting.

In contrast with these results, Daniels et al2 reported IgG-predominant infiltrates in all cases of AIH (n = 38) and IgM-predominant infiltrates in the vast majority (16/18 [89%]) of PBC cases. Similarly, our group recently published a study3 evaluating IgM and IgG immunohistochemical staining in various forms of liver disease, including AIH, PBC, primary sclerosing cholangitis (PSC), and hepatitis C. In our study, an IgM/IgG ratio of 1 or more accurately distinguished PBC from AIH in 90.9% of cases, PBC from AIH or PSC in 87.8% of cases, and PBC from all other groups in 90.9% of cases.

Some aspects of the study by Lee et al1 may have contributed to their discrepant results. First, several of the selected patients had received treatment for AIH, PBC, or both. Immunosuppression is known to affect the concentration of plasma cells in liver biopsy specimens in AIH,4 whereas ursodeoxycholic acid therapy has been associated with decreased portal inflammatory infiltrate in PBC.5 Therefore, we cannot exclude an influence of treatment in the distribution and phenotype of inflammatory cells in AIH or PBC. All PBC and AIH biopsy specimens included in our study were from untreated patients undergoing initial diagnostic evaluation because it is currently unclear whether any results obtained from analyses of treated patients are applicable to untreated cases.

Second, the use of tissue microarray may have significantly limited the amount of tissue for analysis. In several of our cases, assessment of numerous portal tracts was necessary.