

# OBSTETRICS & GYNECOLOGY



**NOTICE:** This document contains correspondence generated during peer review and subsequent revisions but before transmittal to production for composition and copyediting:

- Comments from the reviewers and editors (email to author requesting revisions)
- Response from the author (cover letter submitted with revised manuscript)\*

*\*The corresponding author has opted to make this information publicly available.*

Personal or nonessential information may be redacted at the editor's discretion.

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[obgyn@greenjournal.org](mailto:obgyn@greenjournal.org).

**Date:** Oct 15, 2021  
**To:** "David Bryan Nelson" [REDACTED]  
**From:** "The Green Journal" em@greenjournal.org  
**Subject:** Your Submission ONG-21-1953

RE: Manuscript Number ONG-21-1953

Point-of-Care Viscoelastic Tests in Management of Obstetric Hemorrhage

Dear Dr. Nelson:

Your manuscript has been reviewed by the Editorial Board and by special expert referees. Although it is judged not acceptable for publication in Obstetrics & Gynecology in its present form, we would be willing to give further consideration to a revised version.

When you revise your manuscript, you will first need to study carefully the enclosed reports submitted by the referees and editors. Each point raised requires a response, by either revising your manuscript or making a clear and convincing argument as to why no revision is needed. To facilitate our review, we prefer that the cover letter include the comments made by the reviewers and the editor followed by your response. The revised manuscript should indicate the position of all changes made. We suggest that you use the "track changes" feature in your word processing software to do so (rather than strikethrough or underline formatting).

Please be sure to address the Editor comments (see "EDITOR COMMENTS" below) in your point-by-point response.

Your paper will be maintained in active status for 21 days from the date of this letter. If we have not heard from you by Nov 05, 2021, we will assume you wish to withdraw the manuscript from further consideration.

#### REVIEWER COMMENTS:

Reviewer #1: ONG 21-1953

In this clinical expert series review, the authors summarize the use of point of care viscoelastic testing in the management of postpartum hemorrhage.

A few comments on the manuscript are as follows:

#### BACKGROUND

1. As a general comment, the manuscript is a bit too long and should be condensed to increase engagement from the readership. I don't see a need to address the first proposed aim (line 86) since most of the readers of this journal should be familiar with the importance of PPH.
2. Another suggestion is to condense the section addressing transfusion (lines 107-125), because again this is not really the objective of this series.

#### BODY OF MANUSCRIPT

3. CFT is not depicted on Figure 4
4. Line 205 - the term MCF is designated one definition in the text and another in the figure. Since most providers are unfamiliar with these terms, I could aim for consistency with all terms throughout the manuscript.
5. Line 245-250 this statement has already been made previously (lines 80-83)
6. Line 287-310 The examples presented by the authors do not make the argument that point of care viscoelastic testing improved or assisted in clinical management Although interesting, I am not sure it adds to the overall aim of the manuscript.
7. Line 345-347 An argument can be made that even in high volume units, these point of care tests may be prohibitively expensive and add very little to management of acute hemorrhage.

Reviewer #2: The authors present a clinical expert commentary on point-of-care viscoelastic assays for the management

of obstetric hemorrhage. This report provides timely clarity given the increasing use of these tests in other medical specialties including cardiac surgery, trauma management, and liver transplantation, all of which are associated with high risk for bleeding and transfusion. As critical care intensivists and anesthesiologists have adopted this technology, it is important that obstetricians have a background understanding of viscoelastic assay characteristics, interpretation, and utility in severe obstetric bleeding and directed transfusion of blood components.

Precis: Accurately reflects the scope of the article

Introduction: Opportunity for more concise and clear wording. eg line 54: "Due to the significant contribution of postpartum hemorrhage to maternal morbidity...." Line 65: "The standard approach to laboratory testing has been the use of serial hematologic indices ordered emergently ("STAT") during the hemorrhage and transfusion therapy." First sentence starting at line 84 could be omitted. Lines 93-95- Are there data for this statement?

Background: First paragraph could be omitted. Start with line 111. Omit 113-117. Insert 107-110 followed by 118. Omit 119-125. The introduction effectively highlights the role of hemorrhage in maternal morbidity and mortality. Additionally, the audience for this journal is quite familiar with these complications. Normal and abnormal coagulation is well explained although it may be helpful to concentrate this explanation on the processes at play in obstetric blood loss. Lines 161-163 could be broken into two sentences. Eg "... as well as inhibitors. Practically they measure clot initiation..." Lines 165-170 "Because these standard tests are plasma based, centrifugation to remove cellular elements is necessary and turn-around times of 30-60 minutes render results irrelevant in a rapidly evolving hemorrhage. These challenges are eliminated with TEG and ROTEM viscoelastic testing..."

Viscoelastic technology: Line 173 "A later modification of the technology" rather than "a later developed device". The technique is well explained. The assay descriptions are adequate. Line 222 "This assay is used to identify hypofibrinogenemia but is not a substitute for quantitative measurement..." This is the only one that contains an example of use which could be placed elsewhere eg Line 235 "The most commonly used of these assays in obstetrics are FIBTEM and APTM. ...

Management: Wording could be rearranged for better emphasis. Line 257 "... MTPs may result in excessive transfusion of inappropriate blood components." Line 279 "Although these differences illustrate the protective hyperfibrinogenemia of pregnancy, they do not appear to be clinically significant for accurate ROTEM interpretation. Line 287 "The OBS-2 trial by Collins and colleagues, quantified the FIBTEM A5 level at which transfusion of fibrinogen improved outcomes in women with postpartum hemorrhage: a FIBTEM A5 less than 15..." Cost is mentioned as a possible limitation to the adoption of this technology- what is the cost of a unit, yearly maintenance, training, and for what patient volume? How much space does the unit occupy?

Conclusions: Consider condensing to one paragraph- more redundant than necessary.

References: Appropriate

Figures and Tables: If figures are limited, Fig 3 may be omitted. Figures 6,7, 8 could be combined to present a better understanding of test results in the setting of hemorrhage. Table 1 could be omitted. Table 2- could the terminology be explained under Fig 2 and use just ROTEM as in the manuscript?

Reviewer #3: With great pleasure, I reviewed this manuscript that aimed to provide information about ROTEM technology use in PPH cases. The article included information about SSM coding, normal and abnormal coagulation during pregnancy, standard coagulation lab test and their pros and cons. Then the author wrote about the similarity between ROTEM and TEG technology but not the difference between them! I would suggest adding information about TEG too to make this article thorough. The information involved about ROTEM is well written and they wrote about the technique and assay as well as pros and cons. It would be interesting to mention some potential ideas for future research regarding the topic.

The author mentioned many factors affect the reference values of the ROTEM during pregnancy in line 340-341. Does this means that the use of ROTEM will not be accurate in obstetric settings? please elaborate. Are there any research available about its use during abortion ? Or on high risk patients like Eclampsia? If not you may include these points as future research ideas in the conclusion section.

The article doesn't show disclosure of possible conflict of interest.

Figures and tables are correct and informative.

Sincerely  
Dr. Dana M R Bukhzam

## EDITOR COMMENTS:

1. The Editors of Obstetrics & Gynecology have increased transparency around its peer-review process, in line with efforts to do so in international biomedical peer review publishing. If your article is accepted, we will be posting this revision letter as supplemental digital content to the published article online. Additionally, unless you choose to opt out, we will also be including your point-by-point response to the revision letter. If you opt out of including your response, only the revision letter will be posted. Please reply to this letter with one of two responses:

- A. OPT-IN: Yes, please publish my point-by-point response letter.
- B. OPT-OUT: No, please do not publish my point-by-point response letter.

2. When you submit your revised manuscript, please make the following edits to ensure your submission contains the required information that was previously omitted for the initial double-blind peer review:

- \* Include your title page information in the main manuscript file. The title page should appear as the first page of the document. Add any previously omitted Acknowledgements (ie, meeting presentations, preprint DOIs, assistance from non-byline authors).
- \* Funding information (ie, grant numbers or industry support statements) should be disclosed on the title page and in the body text. For industry-sponsored studies, the Role of the Funding Source section should be included in the body text of the manuscript.
- \* Include clinical trial registration numbers, PROSPERO registration numbers, or URLs at the end of the abstract (if applicable).
- \* Name the IRB or Ethics Committee institution in the Methods section (if applicable).
- \* Add any information about the specific location of the study (ie, city, state, or country), if necessary for context.

3. Obstetrics & Gynecology uses an "electronic Copyright Transfer Agreement" (eCTA), which must be completed by all authors. When you uploaded your manuscript, each co-author received an email with the subject, "Please verify your authorship for a submission to Obstetrics & Gynecology." Please check with your coauthors to confirm that they received and completed this form, and that the disclosures listed in their eCTA are included on the manuscript's title page.

4. Standard obstetric and gynecology data definitions have been developed through the reVITALize initiative, which was convened by the American College of Obstetricians and Gynecologists and the members of the Women's Health Registry Alliance. Obstetrics & Gynecology has adopted the use of the reVITALize definitions. Please access the obstetric data definitions at <https://www.acog.org/practice-management/health-it-and-clinical-informatics/revitalize-obstetrics-data-definitions> and the gynecology data definitions at <https://www.acog.org/practice-management/health-it-and-clinical-informatics/revitalize-gynecology-data-definitions>. If use of the reVITALize definitions is problematic, please discuss this in your point-by-point response to this letter.

5. Because of space limitations, it is important that your revised manuscript adhere to the following length restrictions by manuscript type: Clinical Expert Series, 25 double-spaced pages (approximately 6,250 words). Stated word limits include the title page, précis, abstract, text, tables, boxes, and figure legends, but exclude references.

6. Specific rules govern the use of acknowledgments in the journal. Please note the following guidelines:

- \* All financial support of the study must be acknowledged.
- \* Any and all manuscript preparation assistance, including but not limited to topic development, data collection, analysis, writing, or editorial assistance, must be disclosed in the acknowledgments. Such acknowledgments must identify the entities that provided and paid for this assistance, whether directly or indirectly.
- \* All persons who contributed to the work reported in the manuscript, but not sufficiently to be authors, must be acknowledged. Written permission must be obtained from all individuals named in the acknowledgments, as readers may infer their endorsement of the data and conclusions. Please note that your response in the journal's electronic author form verifies that permission has been obtained from all named persons.
- \* If all or part of the paper was presented at the Annual Clinical and Scientific Meeting of the American College of Obstetricians and Gynecologists or at any other organizational meeting, that presentation should be noted (include the exact dates and location of the meeting).
- \* If your manuscript was uploaded to a preprint server prior to submitting your manuscript to Obstetrics & Gynecology, add the following statement to your title page: "Before submission to Obstetrics & Gynecology, this article was posted to a preprint server at: [URL]."

7. The most common deficiency in revised manuscripts involves the abstract. Be sure there are no inconsistencies between the Abstract and the manuscript, and that the Abstract has a clear conclusion statement based on the results found in the paper. Make sure that the abstract does not contain information that does not appear in the body text. If you submit a revision, please check the abstract carefully.

In addition, the abstract length should follow journal guidelines. The word limit for Clinical Expert Series articles is 250 words. Please provide a word count.

8. Only standard abbreviations and acronyms are allowed. A selected list is available online at <http://edmgr.ovid.com/ong/accounts/abbreviations.pdf>. Abbreviations and acronyms cannot be used in the title or précis. Abbreviations and acronyms must be spelled out the first time they are used in the abstract and again in the body of the manuscript.

9. The journal does not use the virgule symbol (/) in sentences with words. Please rephrase your text to avoid using "and/or," or similar constructions throughout the text. You may retain this symbol if you are using it to express data or a measurement.

10. ACOG avoids using "provider." Please replace "provider" throughout your paper with either a specific term that defines the group to which are referring (for example, "physicians," "nurses," etc.), or use "health care professional" if a specific term is not applicable.

11. Please review the journal's Table Checklist to make sure that your tables conform to journal style. The Table Checklist is available online here: [http://edmgr.ovid.com/ong/accounts/table\\_checklist.pdf](http://edmgr.ovid.com/ong/accounts/table_checklist.pdf).

12. Please review examples of our current reference style at <http://ong.editorialmanager.com> (click on the Home button in the Menu bar and then "Reference Formatting Instructions" document under "Files and Resources"). Include the digital object identifier (DOI) with any journal article references and an accessed date with website references. Unpublished data, in-press items, personal communications, letters to the editor, theses, package inserts, submissions, meeting presentations, and abstracts may be included in the text but not in the reference list.

In addition, the American College of Obstetricians and Gynecologists' (ACOG) documents are frequently updated. These documents may be withdrawn and replaced with newer, revised versions. If you cite ACOG documents in your manuscript, be sure the references you are citing are still current and available. Check the Clinical Guidance page at <https://www.acog.org/clinical> (click on "Clinical Guidance" at the top). If the reference is still available on the site and isn't listed as "Withdrawn," it's still a current document.

If the reference you are citing has been updated and replaced by a newer version, please ensure that the new version supports whatever statement you are making in your manuscript and then update your reference list accordingly (exceptions could include manuscripts that address items of historical interest). If the reference you are citing has been withdrawn with no clear replacement, please contact the editorial office for assistance ([obgyn@greenjournal.org](mailto:obgyn@greenjournal.org)). In most cases, if an ACOG document has been withdrawn, it should not be referenced in your manuscript.

### 13. Figures

All figures: Please upload as figure files on Editorial Manager.

Figure 2: Has permission been obtained for adaption?

Figure 3: Is this figure original to the manuscript? Does an illustrator need to be credited?

Figures 6-8: Please provide at a higher resolution.

14. Authors whose manuscripts have been accepted for publication have the option to pay an article processing charge and publish open access. With this choice, articles are made freely available online immediately upon publication. An information sheet is available at <http://links.lww.com/LWW-ES/A48>. The cost for publishing an article as open access can be found at <https://wkauthorservices.editage.com/open-access/hybrid.html>.

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If you choose open access, you will receive an Open Access Publication Charge letter from the Journal's Publisher, Wolters Kluwer, and instructions on how to submit any open access charges. The email will be from [publicationservices@copyright.com](mailto:publicationservices@copyright.com) with the subject line, "Please Submit Your Open Access Article Publication Charge(s)." Please complete payment of the Open Access charges within 48 hours of receipt.

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If you choose to revise your manuscript, please submit your revision through Editorial Manager at <http://ong.editorialmanager.com>. Your manuscript should be uploaded as a Microsoft Word document. Your revision's cover letter should include the following:

- \* A confirmation that you have read the Instructions for Authors (<http://edmgr.ovid.com/ong/accounts/authors.pdf>), and

- \* A point-by-point response to each of the received comments in this letter. Do not omit your responses to the Editorial Office or Editors' comments.

If you submit a revision, we will assume that it has been developed in consultation with your co-authors and that each author has given approval to the final form of the revision.

Again, your paper will be maintained in active status for 21 days from the date of this letter. If we have not heard from you by Nov 05, 2021, we will assume you wish to withdraw the manuscript from further consideration.

Sincerely,

Torri Metz, MD, MS  
Associate Editor, Obstetrics

2020 IMPACT FACTOR: 7.661  
2020 IMPACT FACTOR RANKING: 3rd out of 83 ob/gyn journals

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In compliance with data protection regulations, you may request that we remove your personal registration details at any time. (Use the following URL: <https://www.editorialmanager.com/ong/login.asp?a=r>). Please contact the publication office if you have any questions.

David Nelson, MD  
Associate Professor

Department of Obstetrics and Gynecology  
Division of Maternal Fetal Medicine

October 30, 2021

RE ONG 21-1953

To the Editor:

Thank you for the opportunity to revise our manuscript for publication. All authors have reviewed and approve of the revised manuscript submitted for publication. In response to the instructions in your correspondence, we have revised our manuscript and herewith respond to the three reviewers' comments and queries with referent line numbers referring to track change version of the manuscript:

**Reviewer #1:**

**In this clinical expert series review, the authors summarize the use of point of care viscoelastic testing in the management of postpartum hemorrhage.**

**A few comments on the manuscript are as follows:**

**BACKGROUND**

**1. As a general comment, the manuscript is a bit too long and should be condensed to increase engagement from the readership. I don't see a need to address the first proposed aim (line 86) since most of the readers of this journal should be familiar with the importance of PPH.**

We have shortened the Introduction and Background by 11 and 9 lines, respectively, including deletion of the first paragraph in the Background.

Introduction: deleted lines 72-76, 110-113, and 119-121.

Background: deleted lines 128-135, and 145-147.

**2. Another suggestion is to condense the section addressing transfusion (lines 107-125), because again this is not really the objective of this series.**

We appreciate the suggestion and have condensed the section addressing transfusion and deleted the paragraph above this portion of the manuscript as suggested. See response to #1 above.

### **3. CFT is not depicted on Figure 4**

CFT is now depicted in Figure 4.

### **4. Line 205 - the term MCF is designated one definition in the text and another in the figure. Since most providers are unfamiliar with these terms, I could aim for consistency with all terms throughout the manuscript.**

MCF is defined as maximum clot firmness. We have clarified the legend of Figure 4 for consistency.

### **5. Line 245-250 this statement has already been made previously (lines 80-83)**

This statement and foregoing text have been modified. Line 281.

### **6. Line 287-310 The examples presented by the authors do not make the argument that point of care viscoelastic testing improved or assisted in clinical management Although interesting, I am not sure it adds to the overall aim of the manuscript.**

We agree that the OBS-2 trial by Collins et al was negative for the primary outcome of study, however, subgroup analysis identified FIBTEM A5 < 12 mm as a relevant marker for need for fibrinogen replacement. We believe this is relevant to the aim of the manuscript describing the technology application—and limitations thereof—in clinical use. We have modified the text to state FIBTEM A5 as a possible relevant analyte for survey with this testing modality, however, more studies are needed. Line 325.

### **7. Line 345-347 An argument can be made that even in high volume units, these point of care tests may be prohibitively expensive and add very little to management of acute hemorrhage.**

Shared use with trauma and transplant services would help absorb these expenses for a given facility. We have added this caveat to the text. Line 394.

### **Reviewer #2:**

**The authors present a clinical expert commentary on point-of-care viscoelastic assays for the management of obstetric hemorrhage. This report provides timely clarity given the increasing use of these tests in other medical specialties including cardiac surgery, trauma management, and liver transplantation, all of which are associated with high risk for bleeding and transfusion. As critical care intensivists and anesthesiologists have adopted this technology, it is important that obstetricians have a background understanding of viscoelastic assay characteristics, interpretation, and utility in severe obstetric bleeding and directed transfusion of blood components.**

**Precis: Accurately reflects the scope of the article**

Thank you.



**Introduction:**

**Opportunity for more concise and clear wording. eg line 54: "Due to the significant contribution of postpartum hemorrhage to maternal morbidity...."**

We have modified the text as suggested and also broken the prior sentence into two separate sentences for clarity. Line 76

**Line 65: "The standard approach to laboratory testing has been the use of serial hematologic indices ordered emergently ("STAT") during the hemorrhage and transfusion therapy."**

We have modified the text as suggested. Line 88

**First sentence staring at line 84 could be omitted.**

We revised and shortened the entire paragraph. Line 108.

**Lines 93-95- Are there data for this statement?**

There are no references for this statement and we have now made it clear that this is our concern and not attributed to others. Line 117

**Background:**

**First paragraph could be omitted.**

Also recommended by Reviewer #1, we have deleted the first paragraph. Line 126.

**Start with line111. Omit 113-117. Insert 107-110 followed by118. Omit 119-125.**

We have significantly modified the text as suggested with omissions and edits. We have not omitted the latter portion of the text as this relevant to understand the challenges with transfusion coding within SMM given the application of ROTEM and TEG technology within the context of hemorrhage management. Line 136.

**The introduction effectively highlights the role of hemorrhage in maternal morbidity and mortality. Additionally, the audience for this journal is quite familiar with these complications. Normal and abnormal coagulation is well explained although it may be helpful to concentrate this explanation on the processes at play in obstetric blood loss. Lines 161-163 could be broken into two sentences. Eg ".... as well as inhibitors. Practically they measure clot initiation..."**

We have modified the text to be broken into two sentences as suggested. Line 192.

**Lines 165-170 "Because these standard tests are plasma based, centrifugation to remove cellular elements is necessary and turn-around times of 30-60 minutes render results irrelevant in a rapidly evolving hemorrhage. These challenges are eliminated with TEG and ROTEM viscoelastic testing..."**

We have modified the text as suggested. Line 196

**Viscoelastic technology: Line 173 "A later modification of the technology" rather than "a later developed device".**

We have changed the text as suggested. Line 207.

**The technique is well explained. The assay descriptions are adequate.**

Thank you.

**Line 222 "This assay is used to identify hypofibrinogenemia but is not a substitute for quantitative measurement..." This is the only one that contains an example of use which could be placed elsewhere eg Line 235 "The most commonly used of these assays in obstetrics are FIBTEM and APTM. ...**

We have moved the text from FIBTEM (line 236) to line 271 (line 235 in original text) as suggested.

**Management: Wording could be rearranged for better emphasis. Line 257" ... MTPs may result in excessive transfusion of inappropriate blood components."**

We have modified the text as suggested. Line 293.

**Line 279 "Although these differences illustrate the protective hyperfibrinogenemia of pregnancy, they do not appear to be clinically significant for accurate ROTEM interpretation.**

We have modified the text as suggested. Line 315.

**Line 287 "The OBS-2 trial by Collins and colleagues, quantified the FIBTEM A5 level at which transfusion of fibrinogen improved outcomes in women with postpartum hemorrhage: a FIBTEM A5 less than 15..."**

The OBS-2 trial was a double-blind randomized controlled trial with a primary end-point of FIBTEM A5  $\leq$  15 mm for treatment which was a negative trial. A pre-specified subgroup analysis of subjects with FIBTEM A5  $\leq$  12 mm was included in this analysis. Infusion of fibrinogen concentrate triggered by FIBTEM A5  $\leq$  15 mm did not improve outcomes in postpartum hemorrhage. Pre-specified subgroup analysis suggested that fibrinogen replacement is not required if the FIBTEM A5 is  $>$  12 mm but an effect below these levels cannot be excluded. That is, this was a negative study for primary outcome of FIBTEM management  $<$  15 mm. This is a pivotal report as it is one of the few studies in utilization of ROTEM technology in obstetric hemorrhage management. We have modified the text as suggested to clarify this point. Line 325.

**Cost is mentioned as a possible limitation to the adoption of this technology- what is the cost of a unit, yearly maintenance, training, and for what patient volume? How much space does the unit occupy?**

We contacted the company for some of these costs, and they did not respond.

**Conclusions: Consider condensing to one paragraph- more redundant than necessary.**

We have condensed the conclusion as suggested to reduce the redundancy. Line 397 and 406.

**References: Appropriate**

Thank you

**Figures and Tables: If figures are limited, Fig 3 may be omitted. Figures 6,7, 8 could be combined to present a better understanding of test results in the setting of hemorrhage. Table 1 could be omitted. Table 2- could the terminology be explained under Fig 2 and use just ROTEM as in the manuscript?**

We appreciate the suggestions by the Reviewer, however, we ask that Figure 3 remain. It schematically allow the reader to understand the complexity of the technology. Figures 6, 7, and 8 are too bulky to combine into one figure and each tells a story that is important to interpreting the manuscript. If the Editor requests, we will remove the Tables, however, these parameters are pivotal to understand management of obstetric hemorrhage and would ask they remain (Table 1). For Table 2, we also recommend keeping this within the manuscript because it gives some information about the technology that is mentioned only peripherally. Indeed, Reviewer #3 cited the value of inclusion of these Figures and Tables. We believe that we have made it clear that ROTEM and TEG are clinically almost identical and presume that TEG is used by some institutions.

**Reviewer #3:**

**With great pleasure, I reviewed this manuscript that aimed to provide information about ROTEM technology use in PPH cases. The article included information about SSM coding, normal and abnormal coagulation during pregnancy, standard coagulation lab test and their pros and cons. Then the author wrote about the similarity between ROTEM and TEG technology but not the difference between them! I would suggest adding information about TEG too to make this article thorough. The information involved about ROTEM is well written and they wrote about the technique and assay as well as pros and cons. It would be interesting to mention some potential ideas for future research regarding the topic.**

We have some ideas for future research, however, given the request to condense the Conclusions by Reviewer #2, this was a focused statement.

**The author mentioned many factors affect the reference values of the ROTEM during pregnancy in line 340-341. Does this means that the use of ROTEM will not be accurate in obstetric settings? please elaborate.**

Factors that affect reference values during pregnancy are addressed, and we have now mentioned that these are minor clinical differences. Line 387.

**Are there any research available about its use during abortion ? Or on high risk patients like Eclampsia? If not you may include these points as future research ideas in the conclusion section.**

Future studies in other obstetrical conditions, such as within patients with septic abortion, urosepsis, and eclampsia would offer insights to expanded use of this modality within maternity services. Prior published experiences with TEG outline management with preeclampsia syndrome, but because ROTEM was the focus of the manuscript, and to our knowledge there is not available literature for the conditions cited by the reviewer, we have added a statement to the conclusions as suggested. Line 424.

**The article doesn't show disclosure of possible conflict of interest.**

We included the disclosure statement on the title page that was made anonymous to the reviewers.

**Figures and tables are correct and informative.**

Thank you. See comment to Reviewer #2.

#### **EDITOR COMMENTS:**

**1. The Editors of Obstetrics & Gynecology have increased transparency around its peer-review process, in line with efforts to do so in international biomedical peer review publishing. If your article is accepted, we will be posting this revision letter as supplemental digital content to the published article online. Additionally, unless you choose to opt out, we will also be including your point-by-point response to the revision letter. If you opt out of including your response, only the revision letter will be posted. Please reply to this letter with one of two responses:**

- A. OPT-IN: Yes, please publish my point-by-point response letter.**
- B. OPT-OUT: No, please do not publish my point-by-point response letter.**

Yes, please publish the point-by-point response letter. Opt-in.

**2. When you submit your revised manuscript, please make the following edits to ensure your submission contains the required information that was previously omitted for the initial double-blind peer review:**

**\* Include your title page information in the main manuscript file. The title page should appear as the first page of the document. Add any previously omitted Acknowledgements (ie, meeting presentations, preprint DOIs, assistance from non-byline authors).**

We have included a title page.

**\* Funding information (ie, grant numbers or industry support statements) should be disclosed on the title page and in the body text. For industry-sponsored studies, the Role of the Funding Source section should be included in the body text of the manuscript.**

This report was not supported by industry or grant funding.

**\* Include clinical trial registration numbers, PROSPERO registration numbers, or URLs at the end of the abstract (if applicable).**

Not applicable.

\* **Name the IRB or Ethics Committee institution in the Methods section (if applicable).**

Not applicable

\* **Add any information about the specific location of the study (ie, city, state, or country), if necessary for context.**

The location of our institution is included in the title page.

**3. Obstetrics & Gynecology uses an "electronic Copyright Transfer Agreement" (eCTA), which must be completed by all authors. When you uploaded your manuscript, each co-author received an email with the subject, "Please verify your authorship for a submission to Obstetrics & Gynecology." Please check with your coauthors to confirm that they received and completed this form, and that the disclosures listed in their eCTA are included on the manuscript's title page.**

The eCTA has been completed.

**4. Standard obstetric and gynecology data definitions have been developed through the reVITALize initiative, which was convened by the American College of Obstetricians and Gynecologists and the members of the Women's Health Registry Alliance. Obstetrics & Gynecology has adopted the use of the reVITALize definitions. Please access the obstetric data definitions at <https://www.acog.org/practice-management/health-it-and-clinical-informatics/revitalize-obstetrics-data-definitions> and the gynecology data definitions at <https://www.acog.org/practice-management/health-it-and-clinical-informatics/revitalize-gynecology-data-definitions>. If use of the reVITALize definitions is problematic, please discuss this in your point-by-point response to this letter.**

We have removed the discussion related to definition of postpartum hemorrhage as recommended by the reviewers.

**5. Because of space limitations, it is important that your revised manuscript adhere to the following length restrictions by manuscript type: Clinical Expert Series, 25 double-spaced pages (approximately 6,250 words). Stated word limits include the title page, précis, abstract, text, tables, boxes, and figure legends, but exclude references.**

The word count of the manuscript including the title page, précis, abstract, text, tables, and figures is 4504 words. The total pages of double-spaced text is 14 pages with additional pages included with figure legend and tables. With formatting and removal of the figures from the report to be uploaded as separate files, the total page count of the submitted report is 23 pages. If the Editor requests further reduction of figures and tables, we would remove some of these elements, however, as noted by Reviewer #3, we believe these elements are informative given the visual nature of this technology.

**6. Specific rules govern the use of acknowledgments in the journal. Please note the following guidelines:**

\* **All financial support of the study must be acknowledged.**

This is stated on the title page.

**\* Any and all manuscript preparation assistance, including but not limited to topic development, data collection, analysis, writing, or editorial assistance, must be disclosed in the acknowledgments. Such acknowledgments must identify the entities that provided and paid for this assistance, whether directly or indirectly.**

Not applicable.

**\* All persons who contributed to the work reported in the manuscript, but not sufficiently to be authors, must be acknowledged. Written permission must be obtained from all individuals named in the acknowledgments, as readers may infer their endorsement of the data and conclusions. Please note that your response in the journal's electronic author form verifies that permission has been obtained from all named persons.**

All persons who contributed to the work are reported in the manuscript.

**\* If all or part of the paper was presented at the Annual Clinical and Scientific Meeting of the American College of Obstetricians and Gynecologists or at any other organizational meeting, that presentation should be noted (include the exact dates and location of the meeting).**

Not applicable.

**\* If your manuscript was uploaded to a preprint server prior to submitting your manuscript to Obstetrics & Gynecology, add the following statement to your title page: "Before submission to Obstetrics & Gynecology, this article was posted to a preprint server at: [URL]."**

Not applicable.

**7. The most common deficiency in revised manuscripts involves the abstract. Be sure there are no inconsistencies between the Abstract and the manuscript, and that the Abstract has a clear conclusion statement based on the results found in the paper. Make sure that the abstract does not contain information that does not appear in the body text. If you submit a revision, please check the abstract carefully.**

**In addition, the abstract length should follow journal guidelines. The word limit for Clinical Expert Series articles is 250 words. Please provide a word count.**

We have modified the Abstract to align with the published report. The word count of 198 words is listed.

**8. Only standard abbreviations and acronyms are allowed. A selected list is available online at <http://edmgr.ovid.com/ong/accounts/abbreviations.pdf>. Abbreviations and acronyms cannot be used in the title or précis. Abbreviations and acronyms must be spelled out the first time they are used in the abstract and again in the body of the manuscript.**

We have utilized standard use of abbreviations.

**9. The journal does not use the virgule symbol (/) in sentences with words. Please rephrase your text to avoid using "and/or," or similar constructions throughout the text. You may retain this symbol if you are using it to express data or a measurement.**

The virgule symbol is not utilized in sentences with words and is only utilized in describing analyte measures and blood factors (eg. factor VII/VIIA) and coagulation parameters (eg. INR/PT).

**10. ACOG avoids using "provider." Please replace "provider" throughout your paper with either a specific term that defines the group to which are referring (for example, "physicians," "nurses," etc.), or use "health care professional" if a specific term is not applicable.**

We have eliminated the word "provider" from the text. Lines 150 and 154.

**11. Please review the journal's Table Checklist to make sure that your tables conform to journal style. The Table Checklist is available online here: [http://edmgr.ovid.com/ong/accounts/table\\_checklist.pdf](http://edmgr.ovid.com/ong/accounts/table_checklist.pdf).**

The tables are formatted according to journal style.

**12. Please review examples of our current reference style at <http://ong.editorialmanager.com> (click on the Home button in the Menu bar and then "Reference Formatting Instructions" document under "Files and Resources"). Include the digital object identifier (DOI) with any journal article references and an accessed date with website references. Unpublished data, in-press items, personal communications, letters to the editor, theses, package inserts, submissions, meeting presentations, and abstracts may be included in the text but not in the reference list.**

References are aligned with journal style.

**In addition, the American College of Obstetricians and Gynecologists' (ACOG) documents are frequently updated. These documents may be withdrawn and replaced with newer, revised versions. If you cite ACOG documents in your manuscript, be sure the references you are citing are still current and available. Check the Clinical Guidance page at <https://www.acog.org/clinical> (click on "Clinical Guidance" at the top). If the reference is still available on the site and isn't listed as "Withdrawn," it's still a current document.**

ACOG documents have been reviewed, and we have confirmed ACOG practice bulletin No. 183 is current.

**If the reference you are citing has been updated and replaced by a newer version, please ensure that the new version supports whatever statement you are making in your manuscript and then update your reference list accordingly (exceptions could include manuscripts that address items of historical interest). If the reference you are citing has been withdrawn with no clear replacement, please contact the editorial office for assistance ([obgyn@greenjournal.org](mailto:obgyn@greenjournal.org)). In most cases, if an ACOG document has been withdrawn, it should not be referenced in your manuscript.**

We have reviewed references.

### 13. Figures

**All figures: Please upload as figure files on Editorial Manager.**

All figures have been uploaded as files in Editorial Manager and removed from the text as suggested with a Figure Legend included in the text of the manuscript.

#### **Figure 2: Has permission been obtained for adaption?**

Because this Figure has been adapted, we have not obtained permission as it is a new figure not previously published. Specifically, we have simplified the coagulation “cascade” for purposes of explanation of coagulation testing. If requested by the Editor, we will remove the figure.

#### **Figure 3: Is this figure original to the manuscript? Does an illustrator need to be credited?**

Yes, this figure is original to the manuscript. An illustrator does not need to be credited.

#### **Figures 6-8: Please provide at a higher resolution.**

We have uploaded the figures with highest resolution possible.

**14. Authors whose manuscripts have been accepted for publication have the option to pay an article processing charge and publish open access. With this choice, articles are made freely available online immediately upon publication. An information sheet is available at <http://links.lww.com/LWW-ES/A48>. The cost for publishing an article as open access can be found at <https://wkauthorservices.editage.com/open-access/hybrid.html>.**

We decline to pay for open access. Thank you.

Sincerely,



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