Use of a Modifier Reduces Inconsistency in the American Society of Anesthesiologists Physical Status Classification in Parturients

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In this study, we sought to determine whether there is a significant discrepancy among a group of practitioners when rating pregnant patients using the ASA Physical Status Classification and whether this discrepancy could be resolved with the addition of a modifier for pregnancy. Our results indicate that significant discrepancy occurs and that it is reduced with the use of the modifier, especially when referring to the healthy parturient. (Anesth Analg 2006;102:1231–3)

The American Society of Anesthesiologists Physical Status Classification (ASA PSC) was developed in 1941 to provide a simple and concise summary of a patient’s preoperative health status and to allow the stratification of data for statistical analysis (1). The definitions are based on severity of disease and may result in inconsistent application (2–5). The pregnant patient presents physiologic disturbances that may increase her anesthetic risk and require special attention in her anesthetic management; these factors are not included in a disease state stratification. A pilot study we conducted demonstrated broad discrepancies in the ASA PSC assigned to an otherwise healthy parturient (6). The purpose of the present study was to further characterize this inconsistency and to test the hypothesis that the use of a simple modifier, G (for gravid), might reduce this.

Methods
The study was approved by the Duke University Medical Center IRB, and consent to use the society’s mailing list was obtained from the Society for Obstetric Anesthesia and Perinatology (SOAP) Board of Directors. A two-part written questionnaire was mailed to each active North American member. In Part 1, anesthesiologists were presented with six clinical scenarios (Table 1) and asked to assign each case an ASA PSC. In Part 2, they were asked to regrade the six scenarios with the use of a modifier, G, similar to the addition of E for emergency cases. Demographic data and practice characteristics were obtained from the respondents. For the primary end-points, changes in classification produced as a result of the G modifier were compared using McNemar’s test for two-category responses (7) and Bowker’s test of symmetry for three-category responses (8). A P value of <0.05 was considered statistically significant.

Results
A total of 863 questionnaires were sent out and 397 were returned completed, for a response rate of 46%. Demographic data from the respondents are presented in Table 2. The rating results for the various clinical scenarios are presented in Table 3.

For the nonobstetric scenarios (Cases 1–3), most of the variability occurred in Case 1, where 22% assigned the patient with gastroesophageal reflux disease an
Table 1. Clinical Scenarios Used in the Survey

<table>
<thead>
<tr>
<th>Case</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>A 34-yr-old man with gastroesophageal reflux disease presenting for elective laparoscopic hernia repair.</td>
</tr>
<tr>
<td>2</td>
<td>A healthy 24-yr-old woman who will undergo left breast biopsy.</td>
</tr>
<tr>
<td>3</td>
<td>A healthy 19-yr-old man with acute appendicitis presenting for emergent appendectomy.</td>
</tr>
<tr>
<td>4</td>
<td>A healthy 24-yr-old woman, G1P0, in active labor, requesting labor epidural analgesia.</td>
</tr>
<tr>
<td>5</td>
<td>A 22-yr-old woman, G1P0, in active labor, developing early signs of preeclampsia.</td>
</tr>
<tr>
<td>6</td>
<td>A 38-yr-old woman, G3P2, with compensated congestive heart failure (CHF) presenting for cesarean section delivery for breech presentation.</td>
</tr>
</tbody>
</table>

G = gravida; P = parity.

Table 2. Demographic Makeup of the Respondents

<table>
<thead>
<tr>
<th>Sex</th>
<th>Female</th>
<th>Male</th>
<th>Practice location</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>141 (36%)</td>
<td>256 (64%)</td>
<td>Academic</td>
</tr>
<tr>
<td></td>
<td>186 (47%)</td>
<td>202 (51%)</td>
<td>Private practice</td>
</tr>
<tr>
<td>Rural</td>
<td>45 (11%)</td>
<td>351 (88%)</td>
<td>Urban</td>
</tr>
</tbody>
</table>

* Nine respondents (2%) work in both academic and private practice settings.  
  a One respondent (<1%) did not specify his practice location.

ASA 1, whereas 76% assigned the status ASA 2, with a few respondents classifying this patient ASA 3 (2%). Case 4, an obstetric case had the greatest inconsistency in ASA classification. Without the G modifier, 176 (44%) respondents classified the patient as ASA 1 and 220 (55%) classified her as ASA 2. After the addition of a G modifier, 342 (86%) classified the patient as ASA 1 and 55 (14%) rated her as ASA 2 (P < 0.0001, McNemar’s test). In this case, 75% who originally chose ASA 2 (42% of all respondents) changed to ASA 1 when given the option of the G modifier. Likewise, for Cases 5 and 6, the change after the addition of the G modifier is statistically significant (P < 0.0001, Bowker’s test), although the principal impact of the G modifier in these cases was the reduced number of higher ratings. A secondary analysis comparing private practice and academic responders’ ratings revealed no difference between the two groups, except for Case 6. The modifier produced lower ratings in both groups, but the change was significant for private-practice respondents only.

**Discussion**

In this study, we found a substantial interobserver variation in ASA PSC among anesthesiologists when referring to parturients, specifically a healthy parturient presenting for epidural analgesia (Case 4). The addition of a modifier for pregnancy reduced this inconsistency. For more complex scenarios involving parturients (Cases 5 and 6), the change in ratings with the addition of the G modifier remained statistically significant.

Since the introduction of the ASA PSC in 1941 (1), several studies have highlighted disagreements and inconsistency of ratings, even among qualified specialists (2–5). Because the ASA PSC relies on severity of disease to describe its categories, we speculated it would produce irregular results with pregnancy. Indeed, we found statistically significant disagreement among SOAP members when describing parturients.

Several potential solutions to this problem could be considered. The first would include a revision of the definitions for ASA categories 2, 3, and 4, making reference to physiologic “disturbance” rather than “disease,” as it existed before the modification by Dripps et al. (9,10). A second option would be to reach a consensus regarding whether pregnancy should or should not be considered when using this classification. A third option would be the addition of a modifier for pregnancy to the current classification. In this last case, the modifier would only imply that a patient is pregnant (as determined by human chorionic gonadotropin levels). Pregnancy is a time when the administration of anesthetics has increased risks to the mother and the fetus, but the anatomic and physiologic alterations are particular to each trimester; the modifier would communicate these as a group.

We evaluated the use of the G modifier and found that a number of anesthesiologists reduced the rating when given the option of the G modifier; we believe these are raters who systematically inflate the ASA PSC of their pregnant patients for lack of a better way of accounting for the patient’s state. The modifier allows the rater to concentrate simply on the parturient’s concomitant disease(s), eliminating pregnancy as a variable in the decision-making process and defining the patient’s physical state more precisely. Cases 5 and 6 presented an increased level of complexity, and the baseline level of disagreement was not greater than for nonpregnant patients. Here, the modifier significantly reduced the number of higher ratings. We believe that in these two cases, the pregnant state was “buried” under the patients’ other diseases.

The addition of the modifier is in keeping with the original goals of ASA PSC: to communicate the preoperative status of a patient with precision and to allow a more precise classification of patient groups, allowing valid comparisons among them. It appears to be easy to use, as evidenced by the way in which respondents immediately adopted it after a brief explanation. The fact that there is a similar modifier, E, for emergency cases, might account for this.
Although not originally intended for this purpose, the ASA PSC has been used as a guide to the severity of patient’s condition in regard to charges billed for a patient’s care. A modifier such as E has been used for billing purposes, so it could be similarly argued that the G modifier should also be used. This would be justified by the increased complexity of medical issues with a parturient. By using the G modifier in this regard, it may be that the increased complexity of dealing with pregnant patients, which would otherwise be reflected with an increase in the ASA classification, could be simply represented by adding the term G, so there would not be a need to increase the ASA PSC level.

There are several limitations to our study. We only surveyed active members of the SOAP, a subpopulation that may not represent the overall population of anesthesiologists caring for obstetric patients. A potential bias toward modifying the ratings could have been introduced by requesting the responders to score the cases and then rescore them with the use of the modifier. In addition, a small (46%) response rate may certainly introduce some sampling error and bias when summarizing the results to the select obstetric anesthesiologists to whom we sent the questionnaire. Just under 400 obstetric anesthesiologists did respond, which, by itself, is a good cohort and typical of the attendance at the annual SOAP meeting. Finally, we do not know how the ratings of the nonresponders compare with those of the responders.

In summary, we found significant disagreement in the use of the ASA PSC with regard to parturients. We present potential solutions to this problem and propose the addition of a pregnancy modifier, G, to this classification as one of them. This modifier improves consistency in ratings and should allow for more effective communication between professionals and more accurate stratification of patient groups for statistical or outcome analysis.

References