Validating a calculator without race and ethnicity to predict vaginal birth after cesarean delivery

OBJECTIVE: We were very interested in the recently published article by Grobman et al describing a new calculator to predict vaginal birth after cesarean delivery. Previously, factors of race and ethnicity have been incorporated into other calculators; however, the new calculator is unique in that race and ethnicity are not included. We were concerned about whether the new calculator can be adapted to the population of Japan because the sample used to develop the calculator only included a small proportion (1.9%) of Asian participants. Therefore, we questioned whether a new calculator derived from such a sample can be properly applied to Asian populations and whether it is indeed possible to exclude factors such as race and ethnicity. We tested the new calculator to see whether it could be adapted in Japan.

STUDY DESIGN: This was a retrospective observational study conducted at a single medical institution in Japan from January 2012 to December 2021 using data obtained from medical records. We included Japanese women with a single pregnancy with cephalic presentation at a gestational age of >37 weeks who had previously undergone only 1 lower segment cesarean delivery and who had attempted trial of labor after cesarean delivery (TOLAC). We extracted the variables (maternal age, prepregnancy weight, height, indication for previous cesarean delivery, obstetrical history, and treated chronic hypertension) needed for the new calculator. Using these variables, we determined the predictive probabilities using the new calculator to create a receiver operating characteristic (ROC) curve. Finally, we determined the area under the ROC curve (AUC).

RESULTS: During the study period, 94 women attempted TOLAC. Of these, 70 had a vaginal delivery with a success rate of 74.5%. Clinical characteristics are shown in the Table. Our sample size was sufficient with 99% power. Using the above variables, we determined that the AUC was 0.76 (95% confidence interval, 0.66–0.86), as shown in the Figure. This result was similar to that reported by Grobman et al.

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>Success (n = 70)</th>
<th>Failure (n = 24)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maternal age (y)</td>
<td>33.8 ± 4.0</td>
<td>35.3 ± 4.6</td>
</tr>
<tr>
<td>Prepregnancy weight (kg)</td>
<td>52.9 ± 7.9</td>
<td>53.2 ± 8.7</td>
</tr>
<tr>
<td>Height (cm)</td>
<td>158.5 ± 6.6</td>
<td>156.7 ± 5.0</td>
</tr>
<tr>
<td>Arrest disorder indication for previous cesarean delivery</td>
<td>7 (10.0)</td>
<td>5 (20.8)</td>
</tr>
<tr>
<td>Obstetrical history</td>
<td></td>
<td></td>
</tr>
<tr>
<td>No previous vaginal delivery</td>
<td>46 (65.7)</td>
<td>21 (87.5)</td>
</tr>
<tr>
<td>Previous vaginal delivery only before previous cesarean delivery</td>
<td>9 (12.3)</td>
<td>3 (12.5)</td>
</tr>
<tr>
<td>Previous vaginal birth after cesarean delivery</td>
<td>15 (21.4)</td>
<td>0 (0.0)</td>
</tr>
<tr>
<td>Treated chronic hypertension</td>
<td>1 (1.4)</td>
<td>1 (4.2)</td>
</tr>
</tbody>
</table>

Data are presented as mean ± standard deviation or number (percentage).

CONCLUSION: In this study, we showed that the new calculator, which does not include race or ethnicity, seems to be well adaptable to the Japanese population. Worldwide, the decrease in TOLAC has contributed to the increase in the cesarean delivery rate, which is rising globally. This trend can also be seen in Japan, with <5% of women attempting TOLAC, which is a small percentage when compared with other countries. This calculator can be used to accurately predict individual success rates of TOLAC. Ultimately, it is hoped that this will lead to a reduction in the overall cesarean delivery rate. We also believe that it would be preferable to validate the new calculator in future research that includes additional racial and ethnic groups.

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REFERENCES

The association of obesity with type I uterine cancer—is this an oversimplification?

OBJECTIVE: Endometrial cancer (EC) is increasing in incidence and mortality rates, possibly due to the rising rates of obesity in the United States. The type I/II EC classification system was first proposed by Bokhman in 1983 following 20 years of personal observations among 366 women and established obesity as a classical risk factor for low-grade EC with a good prognosis. However, more recent pooled analyses suggest that the 2 types share many etiologic risk factors, including obesity. Given the increase in mortality as a consequence of high-risk EC, the relationship between obesity and uterine cancer, as proposed by Bohkman, may be oversimplified. This study aimed to analyze the trend of type I/II EC in the United States as it relates to obesity using national statistics.

STUDY DESIGN: Data were obtained from the United States Cancer Statistics database and the Behavioral Risk Factors Surveillance System survey from 2001 to 2017. The incidence of uterine cancer, histologic type, obesity, and average annual percentage change (AAPC) were calculated using Joinpoint regression. Endometrial histology was classified according to traditional type I (endometrioid grade 1–3) and type II (serous, clear cell, carcinosarcoma) categories.

RESULTS: Over this 17-year study period, 778,891 patients were diagnosed with uterine cancer. Overall, the rate of new uterine cancer cases increased by 0.82% annually (P<.005), leading to an incidence of 24.07 per 100,000 in 2001 as compared with 27.04 per 100,000 women in 2017. The incidence of type I EC remained stable (AAPC, 0.40; P=.61) with a stable incidence of grade I EC (AAPC, −0.48; P=.125) and a