

## Obstetrician Gender and Delivery Mode at a Japanese Perinatal Center

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### Abstract

We examined differences in delivery modes between deliveries managed by female obstetricians and gynecologists (OB/GYNs) and those managed by male OB/GYNs at our hospital. The rate of vacuum extraction/forceps delivery was significantly lower when deliveries were managed by female OB/GYNs. Logistic regression analysis showed that the lower rate of vacuum extraction/forceps delivery was associated with a lower rate of diagnosis of nonreassuring fetal status during the second stage of labor by female OB/GYNs. The rate of cesarean delivery and obstetric outcomes did not differ with the gender of the managing OB/GYN. The increasing number of female OB/GYNs may help increase the rate of maternal satisfaction associated with the decreased rate of instrumental delivery.

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**Key words:** obstetrician gender, delivery mode, instrumental delivery, Japan

### Introduction

In Japan, the number of obstetricians and gynecologists (OB/GYNs) has remained almost unchanged for the past 30 years; however, the percentage of female OB/GYNs has increased dramatically<sup>1,2</sup>. For example, about 70% of OB/GYNs younger than 30 years are now female<sup>2</sup>.

Several studies outside Japan<sup>3,4</sup> have shown that physician gender affects decisions regarding the mode of delivery. In Taiwan and the United States<sup>3,4</sup>, for example, male OB/GYNs were more likely to perform a requested cesarean delivery than were female OB/GYNs. In comparison with male OB/GYNs, female OB/GYNs supposedly have better information regarding the nonclinical difference in some delivery modes and are more likely to communicate the knowledge to their patients<sup>3,5</sup>. To

date, however, few studies have examined the association between physician gender and delivery modes in Japan. In the present study, we examined differences in delivery modes and obstetric outcomes between deliveries managed by female OB/GYNs and those managed by male OB/GYNs at our hospital, which is a main perinatal center in Tokyo, Japan (about 2,000 deliveries per year).

### Methods

We retrospectively analyzed cases of nulliparous vertex singleton deliveries at 37 to 41 weeks' gestation (term) managed at our hospital from 2009 through 2013. At our institution, we do not perform cesarean deliveries by maternal request in the absence of clinical indications. We compared delivery modes and obstetric outcomes—the rate of diagnosis of nonreassuring fetal status (NRFS), third- and

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Table 1 Difference in delivery modes and obstetric outcomes based on the gender of the managing obstetrician at Japanese Red Cross Katsushika Maternity Hospital

	Male OB/GYN	Female OB/GYN	<i>P</i> -value	Crude odds ratio	95% confidence interval
Deliveries	1,506	3,013			
Diagnosis of nonreassuring fetal status	420 (27.9%)	729 (24.2%)	<0.01	0.83	0.72–0.95
Delivery mode					
Normal delivery	1,028 (68.3%)	2,097 (69.6%)	Reference	1	
Vacuum extraction/Forceps delivery	286 (19.0%)	472 (15.7%)	0.01	0.81	0.69–0.95
Cesarean delivery	192 (12.7%)	1,018 (33.8%)	0.18	1.13	0.94–1.30
Obstetric outcomes					
Umbilical artery pH<7.1	25 (1.7%)	64 (2.1%)	0.29	1.29	0.81–2.05
Severe perineal laceration	50 (3.3%)	99 (3.3%)	0.95	0.99	0.70–1.40

Data are presented as number (percentage).

fourth-degree perineal lacerations (severe perineal laceration), and umbilical artery pH<7.1—on the basis of the sex of the managing OB/GYNs at our hospital. The protocol for this study was approved by the Ethics Committee of the Japanese Red Cross Katsushika Maternity Hospital.

Data are presented as numbers (%). For statistical analysis of categorical variables, the  $\chi^2$  test was used. Differences with  $p<0.05$  were considered significant. Odds ratios (ORs) and 95% confidence intervals (CIs) were also calculated. Variables used in the multivariate model were those that had shown a significant ( $p<0.05$ ) association with the delivery mode on univariate analysis.

### Results

During the study period, 4,519 nulliparous vertex singleton deliveries at term were managed at our hospital. The primary managing OB/GYN was male for 1,506 deliveries (33.3%) and was female for 3,013 deliveries (66.7%) (**Table 1**). During the study period, 16 primary managing OB/GYNs were male and 22 were female, and male and female OB/GYNs did not differ significantly in mean age or career at our institution.

Univariate analysis showed significantly lower rates of both the diagnosis of NRFS during the second stage of labor ( $p<0.01$ ) and vacuum extraction/forceps delivery (VE/FD) ( $p=0.01$ ) when

deliveries were managed by female OB/GYNs (**Table 1**). Logistic regression analysis showed that the lower rate of VE/FD (adjusted OR, 0.85; 95% CI, 0.70–1.02;  $p=0.08$ ) was associated with a lower rate of diagnosis of NRFS during the second stage of labor by female OB/GYNs (adjusted OR, 0.83; 95% CI, 0.69–1.00;  $p=0.05$ ). However, neither the rate of cesarean delivery nor obstetric outcomes differed with the gender of the managing OB/GYN.

### Discussion

We understand that this study has several limitations, such as our failure to address the process used by OB/GYNs and their patients to choose the delivery mode and the study being a retrospective study performed at a single institution. We found no significant association between OB/GYN gender and the rate of cesarean delivery at our institution; however, considering we also found no difference in neonatal outcomes, the timing of the start of instrumental delivery, such as VE/FD, due to the diagnosis of NRFS by the male OB/GYNs may be unnecessarily earlier than that by female OB/GYNs in similar cases of delivery. The reason for the present results is unclear, because we found no differences in age, career, or practice setting between male and female OB/GYNs at our institution. However, the difference in physician characteristics due to gender seemed to affect the

interpretation of fetal heart-rate monitoring. Obstetric practice usually includes a variety of possible medical interventions to prevent obstetric complications during labor. A possible reason, other than the observation in our individual institution, is that female OB/GYNs may avoid unnecessary medical interventions, as midwives do, to a greater extent than do male OB/GYNs do. This tendency may indicate a difference in attitude between male and female OB/GYNs. The possibly different perspectives of male and female OB/GYNs should both be respected, and neither should be considered wrong. However, a larger study may be needed to examine the relations of delivery modes and outcomes to the gender of Japanese OB/GYNs.

The recently increasing numbers of female OB/GYNs has been supposed to be disadvantageous for the supply of OB/GYNs in Japan, because many female physicians may have difficulty in continuing with and returning to work due to pregnancy, childcare, or other reasons<sup>12</sup>. The present results suggest, however, that the increase in the number of female OB/GYNs may help increase the likelihood of maternal satisfaction associated with a decreased rate of instrumental delivery. In addition, female physicians are reportedly more engaged in communication with their patients than are their

male colleagues, leading to more patient-centered care<sup>6</sup>. Therefore, the effective use of the increased number of female OB/GYNs in Japan may make deliveries more comfortable for pregnant women.

**Conflict of Interest:** The authors declare no conflict of interest.

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