

Despite same treatment, obese women face more risks for postpartum hemorrhage complications

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Postpartum hemorrhage, or excessive bleeding after delivery, is still one of the leading causes of severe maternal injury and death in the United States. And the rise in obesity among pregnant women has been linked to

increased rates of this potentially serious, largely preventable obstetric complication.

As part of an academic medical center initiative to improve [maternal health](#), researchers at the University of South Florida Health (USF Health) and Tampa General Hospital (TGH) examined how obesity affected the management and outcomes of [postpartum hemorrhage](#) at a tertiary care center. Their findings were published Oct. 14 in the *American Journal of Perinatology*.

"This study showed that we managed postpartum hemorrhage the same way for [women](#) who were obese and those who were not. That's good overall—but the same [medical treatment](#) is not always equitable because the [obese women](#) still experienced worse outcomes," said study senior author Judette Louis, MD, MPH, the James Ingram Endowed Professor and chair of Obstetrics and Gynecology at the USF Health Morsani College of Medicine and co-medical director of Women's and Children's Services at TGH. "It highlights that certain groups of high-risk obstetric patients, such as obese women, may need some additional support or a different treatment protocol for postpartum hemorrhage."

The researchers conducted a retrospective analysis of all deliveries complicated by postpartum hemorrhage from February 2013 through January 2014—about 2.6% of the hospital's 9,890 deliveries during that period (a rate consistent with the national average). Controlling for confounding variables, they compared two groups of patients treated for postpartum hemorrhage: obese women (a body mass index of 30 or higher) and nonobese women (BMI characteristic of normal weight or overweight). Both groups were similar in age, race, insurance status, and alcohol and tobacco use.

Among the study's key findings:

- Obese patients were more likely to have had cesarean sections, a risk factor for hemorrhage complications, than nonobese patients.
- Both groups were equally likely to receive the same medications (carboprost, methylergonovine and misoprostol) to treat excessive blood loss, but obese women tended to receive more than one of these uterotonic agents. The medications are administered to induce contractions when the uterus does not contract enough to shrink to normal size after childbirth. This condition, known as uterine atony, is a primary cause of postpartum hemorrhage.
- Despite similar management, obese women experienced more of any severe hemorrhage-related complications (including shock, renal failure, transfusion-related lung injury, and cardiac arrest), and they were more apt to sustain more than one of the serious complications.
- While the need for blood transfusion was similar for both groups, obese women were more likely to have greater blood loss and require more units of transfused blood. "Hemorrhage-related complications are largely driven by blood loss and the number of units of blood transfused," said Dr. Louis, a USF Health maternal-fetal medicine specialist at TGH.
- Although obese women were more often transferred to the operating room, the rates of intrauterine pressure balloon tamponade (a device used to promote uterine contraction), interventional radiology procedures, or hysterectomy were no different for obese and nonobese women.

Some [basic science](#) and [clinical studies](#) investigating uterine contractions during labor indicate obesity can impair uterine tone, so that the reproductive organ may not react as quickly or well to contraction-inducing medications. The underlying reasons for this are undefined, but a disruption of the hormonal balance in obese women may contribute to

the impaired uterine response to control bleeding, Dr. Louis said. "Perhaps they need a higher dose of uterotonic agents, or the order in which the medications are administered should be changed to work more effectively for them."

The USF Health-TGH study points to the need for larger, multisite studies to better understand the different responses to treatment protocols for postpartum hemorrhage in obese women, she added. That includes looking into the possible physiological connections between obesity, pharmacokinetics of the treatment (how the body processes medications) and the impact on uterine atony.

"With higher rates of obesity affecting higher numbers of [pregnant women](#) each year, it is important to evaluate how this is affecting the management of obstetric complications," the study authors conclude. "This study shows that despite similar (postpartum [hemorrhage](#)) management, key differences do exist in outcomes based on obesity status. There are numerous directions for future research... many of which have the potential for significant clinical implications and improvement of maternal outcomes."

More information: Aleksandra Polic et al, The Impact of Obesity on the Management and Outcomes of Postpartum Hemorrhage, *American Journal of Perinatology* (2020). [DOI: 10.1055/s-0040-1718574](https://doi.org/10.1055/s-0040-1718574)

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