Cardiac output-guided maternal positioning may improve the usefulness of maternal cardiovascular profiles

TO THE EDITORS, I read with great interest the letter to the editor recently published in the American Journal of Obstetrics and Gynecology by Valensise, Novelli, and Vasapollo[1] and agree that targeted maternal positioning during the second half of gestation deserves further evaluation for the possible prevention of pregnancy complications.[2,3] I offer the following comments and questions.

1) The letter advocates using maternal cardiovascular (CV) profiles for identifying women at an increased risk for fetal growth restriction. The letter also recognizes that positional obstruction of the inferior vena cava (IVC) can reduce maternal cardiac output (CO), thereby altering the maternal CV profile. Would the authors therefore recommend that maternal CV profiles be obtained in maternal positions which are individually demonstrated to avoid obstruction of the IVC? This requirement would eliminate the confounding effect of unrecognized partial or complete obstruction of the IVC on maternal CV profiles, and thereby allow investigators and clinicians to focus solely on the hemodynamics of the unobstructed—or "intrinsic"—maternal CV system.
2) It is possible that recurrent and unrecognized positional obstruction of uterine venous return at the IVC may not only confound the significance of single measurements of maternal hemodynamics, but may also modify (or "train") the maternal CV system to maintain a lower CO and a higher systemic vascular resistance than would be the case without recurrent obstruction. If this were true, prevention of recurrent and unrecognized IVC obstruction on a systematic and individualized basis might not only produce more meaningful data about intrinsic maternal CV function but might also prevent lasting injury to the maternal CV system itself.
3) Obstruction of uterine venous return at the IVC may not only decrease maternal CO but also increase uterine venous pressure, and this increased pressure may decrease both uteroplacental and fetoplacental perfusion.[2,3]
4) Should the terms "maternal rest" and "bed rest" be replaced with "position therapy," since "bed rest" historically has usually meant simple "confinement to a bed" without specification of the left lateral position?
5) In one study, 23% of pregnant women had higher CO in the right lateral decubitus position than in the left.[4] Would the authors therefore agree that "CO-guided maternal positioning"[2,3] might help to individualize the prevention of positional obstruction of the IVC during pregnancy rather than assuming that the left lateral decubitus position is always best for preventing IVC obstruction? ■

Thomas L. Archer, MD, MBA
Former Clinical Professor
Former Director of Obstetric Anesthesia
Department of Anesthesiology
University of California San Diego
La Jolla, CA
tarcher0727@hotmail.com

The author reports no conflict of interest.

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