

Pelvic Artery Embolization Arrests PPH

BY KERRI WACHTER

FROM THE ANNUAL MEETING OF THE SOCIETY FOR INTERVENTIONAL RADIOLOGY

CHICAGO – Pelvic artery embolization is a highly effective technique for managing postpartum hemorrhage with the added advantage that it preserves the uterus and fertility, according to Dr. Ji Hoon Shin.

In a retrospective study of 225 women who underwent pelvic artery embolization (PAE) to stop postpartum hemor-

rhage (PPH), a single procedure stopped bleeding in 86% of women. A second procedure stopped bleeding in 89%.

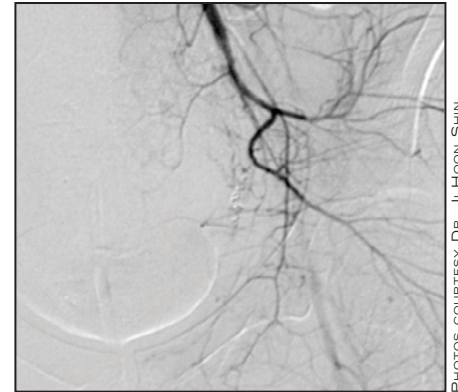
Standard therapies include fluid resuscitation/blood transfusion, management of the underlying cause, or surgery – uterine artery ligation, suturing, and hysterectomy. PAE involves inserting a catheter into the femoral artery via a small incision in the groin. The interventional radiologist can then inject small particles or coils into the arteries to stem hemorrhage. Not only is the technique minimally invasive, it can save the uterus and preserve fertility. While the use of PAE was first reported in 1979, obstetrician awareness of this option is still limited.

In this study, researchers identified 225 patients who underwent pulmonary artery embolization for PPH within 24 hours of delivery between 2000 and 2010. Technical success was defined as cessation of bleeding on postembolization angiogram and cessation of vaginal bleeding on physical inspection. Clinical success was defined as the cessation of bleeding following PAE without the need for additional surgery during the hospital stay.

Uterine atony was the most common cause of PPH in this group (81%). Roughly a third (36%) of patients had positive



Internal iliac angiography shows contrast extravasation from a cervical branch of the left uterine artery (on left with arrows). Embolization with a microcoil and glue stopped bleeding immediately (right).



PHOTOS COURTESY DR. JI HOON SHIN

VITALS Major Finding: A single pelvic artery embolization procedure stopped postpartum hemorrhage in 86% of women. A second procedure stopped bleeding in 89%.

Data Source: A retrospective study of 225 women who underwent PAE to stop postpartum hemorrhage.

Disclosures: Dr. Shin reported that he had no relevant financial disclosures.

rhage (PPH), a single procedure stopped bleeding in 86% of women. A second procedure stopped bleeding in 89%.

“The major advantage of this procedure is that you can save the uterus and fertility,” Dr. Shin said at the meeting.

angiographic findings. Contrast extravasation (a sign of acute bleeding) was seen in most patients (86%) and pseudoaneurysm occurred in 14% of patients, said Dr. Shin of the department of radiology at the University of Ulsan in Seoul, South Korea.

Technical success was 89%. Clinical success with only one PAE procedure was 86% and was 89% when women who had an additional PAE procedure were included. Overall bleeding control – including patients who had repeat PAEs and/or surgeries – was 98%.

In terms of safety, major complications occurred in 2% of patients and included

puncture site hematoma and uterine artery dissection. Transient numbness – a minor complication – occurred in 1% of women.

In terms of fertility preservation, 97% of 113 women who were available for follow-up resumed regular menstruation. Irregular menses occurred in two women (2%), and early menopause occurred in one patient (1%). Notably, 11 patients (10%) were able to become pregnant.

On statistical analysis, the presence of disseminated intravascular coagulopathy was the most important negative prognostic factor. ■

Serum Aneuploidy Markers May Predict Stillbirth

BY SUSAN LONDON

FROM THE ANNUAL MEETING OF THE SOCIETY FOR MATERNAL-FETAL MEDICINE

SAN FRANCISCO – Levels of serum markers measured in the second trimester for aneuploidy screening also may improve prediction of stillbirth, according to results of a population-based, case-control study conducted by the Stillbirth Collaborative Research Network.

Of four markers studied, inhibin A was the only one associated with the risk of stillbirth after adjustment for the other markers and risk factors known before pregnancy. But elevated levels of this marker alone had a positive likelihood ratio of just 5.44.

On the other hand, elevated levels of both inhibin A and maternal serum alpha-fetoprotein (MSAFP) had a positive likelihood ratio of 15.77.

“The combination of elevated inhibin A with elevated MSAFP improves prediction of stillbirth,” Dr. George R. Saade commented at the meeting. “This association is strong and may prove useful in risk assessment.”

An attendee asked how the findings could be applied clinically and whether laboratories should start flagging this combination on test results, given that it might not necessarily be flagged for Down syndrome or neural tube defects.

“That’s obviously the next step in all of this: What do we do with the result, and how do we manage these patients?” Dr. Saade acknowledged. “You cannot ignore a positive likelihood ratio of 15, but what do we do?”

Giving one possible scenario, he noted that growth restriction has been implicated in up to 40% of cases of stillbirth, so earlier delivery in pregnancies with elevation of both markers could potentially alter outcome in some cases.

But “we still don’t know,” he cautioned. “What I would like to do is actually dig down deeper and develop a model, like a multiple-marker screen we do for Down

VITALS Major Finding: The combination of elevated second-trimester levels of inhibin A and MSAFP had a positive likelihood ratio of 15.77 for the prediction of stillbirth. The combination also had high specificity (99.6%). But its sensitivity (6.0%) and negative likelihood ratio (0.94) were lower than those considered clinically useful.

Data Source: A population-based, case-control study of 157 women with a stillbirth and 626 women with a live birth.

Disclosures: Dr. Saade did not report any relevant conflicts of interest.

syndrome, where the risk is individualized according to the patient.”

For the study, births were drawn from a parent population-based, case-control study involving 59 hospitals and more than 2,500 births. Stillbirths (cases) and a representative sample of live births (controls) were evaluated with maternal interviews, medical record reviews, and analysis of biospecimens.

In the substudy, the investigators included births from the parent study in which the mother had second-trimester serum screening for aneuploidy as part of routine prenatal care and delivered after 24 weeks’ gestation.

Levels of four serum markers – inhibin A, MSAFP, HCG, and unconjugated estriol (uE3) – were analyzed alone and in selected combinations for their association with stillbirth.

In all, the substudy had 157 stillbirths and 626 live births. “This is the largest population-based study of stillbirth with an extensive evaluation of both cases and controls,” noted Dr. Saade, chief of the division of maternal-fetal medicine at the University of Texas, Galveston.

In a multivariate analysis adjusted for the other markers only, women had an elevated risk of stillbirth if they had above-normal levels (defined as greater than 2.0 multiples of the median) vs. normal levels of MSAFP

(odds ratio, 3.91; $P = .006$) and inhibin A (OR, 5.68; P less than .0001).

After additional adjustment for a prepregnancy risk score for stillbirth, which included more than a dozen sociodemographic, medical, and reproductive factors, the only marker still associated with increased risk was inhibin A (OR, 4.49; $P = .001$).

For predicting stillbirth, the combination of elevated MSAFP and inhibin A levels had the highest positive likelihood ratio of any of the markers individually and in combination by far (15.77).

This value “is above the cutoff of 10, traditionally considered as clinically useful,” noted Dr. Saade.

In comparison, the positive likelihood ratio was 5.44 for elevated inhibin A alone and 2.58 for elevated MSAFP alone.

The combination also had high specificity (99.6%). But its sensitivity (6.0%) and negative likelihood ratio (0.94) were lower than those considered clinically useful, according to Dr. Saade.

The study’s findings were essentially the same after exclusion of births involving multiple gestations, intrapartum stillbirth, and fetal anomalies.

To expand on the findings, the investigators plan to reanalyze the data, stratifying results according to the causes of the stillbirths, he said.

Dr. Saade agreed with an attendee that it will be important to verify that the markers are, in fact, predicting stillbirth and not growth restriction instead.

“The problem is, when do you count what was the timing of the stillbirth death ... because whether it’s growth restricted or not depends on when the death occurred and whether there was even a change in the weight after the death,” he said.

His team is therefore obtaining fetal measurements to better determine the timing of this event and the potential contribution of growth restriction. ■