Drop race adjustment for AFP prenatal testing, study urges

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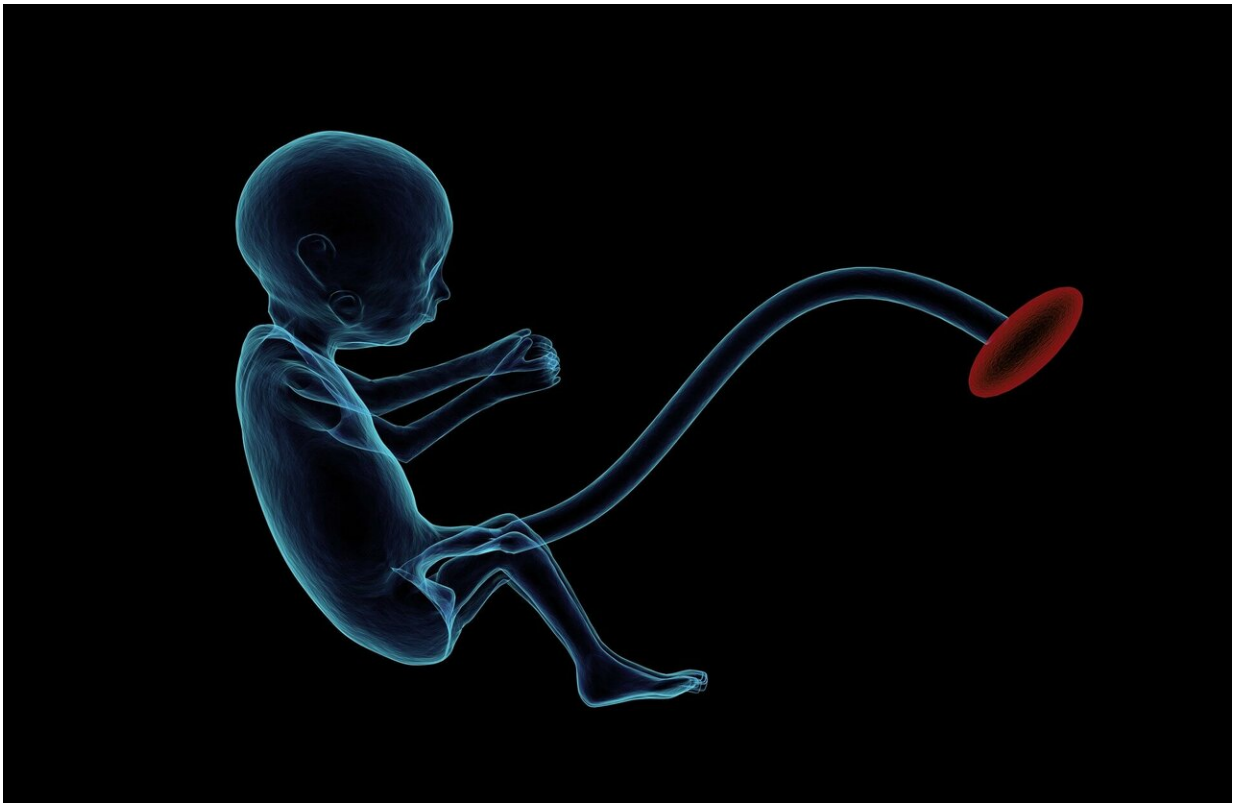

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A race-based adjustment to test-result values from a common prenatal screening should be discontinued, according to a study published this week in *Obstetrics and Gynecology*. The adjustment has historically been applied only with Black women.

A retrospective review of 27,710 medical records at UW Medicine hospitals evaluating alpha fetoprotein (AFP) levels in pregnant patients between January 2007 and December 2020 found no clinical measurable difference in AFP levels between non-Black patients and Black patients, the UW Medicine study found.

The blood test is offered to women who want to find out if their pregnancy involves increased risk of Down syndrome, trisomy 18 or neural tube defects such as spina bifida. In the case of AFP, this test is most often used to detect spina bifida. For the past several decades since its discovery, laboratories have routinely adjusted the concentration of AFP by approximately 10% for Black mothers, but not for patients of non-Black races.

"When you think about it, to characterize something like this on the basis of race is pretty ludicrous," said lead author Dr. Nicholas Burns, a maternal-fetal medicine fellow with the University of Washington School of Medicine.

The large data set enabled the UW Medicine team to "confirm our hypothesis that there are no racial differences in maternal serum AFP," said senior author Dr. Shani Delaney, associate professor of OB-GYN, division of maternal fetal medicine, at the University of Washington School of Medicine. Of the over 27,000 patients reviewed, 26,050 were non-Black and 1,660 were Black. Linear regression models were used to adjust for differences in gestational age and weight.

Using white race as the "normal" group in medical research "incorrectly implies that this group is a monolith and perpetuates racism by implying that BIPOC individuals are significantly different solely due to racial identification," the authors said. Specifically in prenatal AFP screening, Burns notes that the historically used adjustment for Black patients could miss a case of spina bifida or incorrectly indicate the fetus has Down

syndrome. This study builds upon other work in medicine that uses race as an inappropriate risk factor, such as the glomerular filtration rate equation, vaginal birth after cesarean calculator, definitions of anemia in pregnancy and guidelines for low-dose aspirin prophylaxis in pregnancy, Burns and Delaney noted.

"While there are well established differences of medical outcomes by race, we can't use race as a proxy for genetics or biology; but instead we need to look at the underlying social determinants which lead to those outcomes," Delaney said.

In the study, the authors present that "race is fraught with problems of definition, both in how it is defined and by whom it is defined. For many electronic medical record systems, it is unclear whether the entered race was designated by the patient or presumed by a clinician or laboratory technician without confirming the patient's self-identified race."

"We need an awareness that race-based corrections slink into medicine in many ways, and providers may not be aware they exist or that labs are making these corrections," Delaney said. UW Medicine stopped this practice about six months ago for prenatal screening tests, and has instructed its labs not to shift the values—in the case of AFP—by about 10% for Black mothers. UW Medicine similarly stopped using race-based equations to calculate kidney function in 2020.

As for expectant mothers who are Black, Indigenous or People of Color (BIPOC), Delaney encourages them to have a conversation with their providers, and ask "what tests are you sending me for and why am I getting these tests? Can you tell me what you and your hospital are doing to address the higher rates of maternal morbidity and mortality in BIPOC patients?"

They also should be informed if the test results are being adjusted for

race, she said.

AFP was discovered in 1956 and was found to cross the placenta into the maternal serum or blood. By the 1970s, maternal serum AFP measurements became *the* test in the new field of prenatal screening and diagnosis, especially for spina bifida. As the use of this test developed, it was found that other conditions, such as maternal weight, smoking status, diabetes, and chronic hypertension changed the concentration of AFP in the serum. At the time, race was also considered as a mitigating factor in the values, and has persisted in the interpretation of the AFP test for the past 50 years, the study noted.

In 1983, a research group out of California observed race—white, Black and Asian—to adjust the interpretation of the serum AFP level. Another UK study in 1996 stated the AFP value from a pregnant Black woman should be reduced by 20% if maternal weight was the same. This study was updated in 2011 and 2013, but did not drop the differential recommendation.

Prior studies did not take into account socio-economic and health considerations, such as environmental exposures, diabetes, weight or hypertension, Burns said. Additionally, "these studies didn't take into account paternal contribution, such as the fetus having a white mother and a Black father," Burns added.

In regards to other potential factors contributing to AFP levels in pregnancy, these earlier studies ignored the push by the federal government to supplement folic acid intake by fortifying the vitamin into wheat products in the 1990s. Lack of folic acid is known to be a key contributor to development of spina bifida. In the past 30 years since initiation of folic acid fortification of wheat flour in the United States, the number of spina bifida cases has fallen by 30%, Burns noted.

The continued inclusion of race to adjust serum AFP values, rather than obesity, tobacco use, diabetes, fortified diet or other plausible biological risk factors reflects another instance of misrepresentation of race as a biological factor, rather than a social construct in medicine, the authors conclude.

For this study, the group looked at only lower-risk mothers who did not have diabetes, tobacco use or multiple gestations. Future studies should include these mothers, Burns said. Another prenatal test,pregnancy-associated plasma protein A or PAPP-A, used for prenatal genetic screening and preeclampsia risk estimates, has a reported 50% differential for Black women, which Burns said needs to reevaluated as well. That protein was not a topic of this study. This study did not include research into the health of the babies after birth, Burns said.

With improvements in ultrasound technology and cell-free DNA testing coming to the forefront of prenatal screening in the last two decades, use of AFP screening has fallen by the wayside a bit, Burns said. But, it is still used to provide valuable information about pregnancy risks for patients without access to these newer tests.

Delaney hopes that this article "will encourage systematic approaches to evaluate racism and social injustices as modifiable contributors to racial inequities in healthcare rather than the incorrect use of race as a biologic factor."

More information: Nicholas R. Burns et al, Reconsidering Race Adjustment in Prenatal Alpha-Fetoprotein Screening, *Obstetrics & Gynecology* (2023). DOI: 10.1097/AOG.0000000000005045

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