出産した子供の数は女性の将来の心血管系の健康状態に影響する（Abstract 14-A-10936）

4人以上の生児出生を有する女性は動脈硬化の早期徴候を示す確率が高い

Women who have four or more live births are more likely to show early signs of atherosclerosis

子供を4人以上出産した女性はそれより妊娠の少ない女性に比べ動脈硬化所見を有する確率が高いとの研究結果が第63回American College of Cardiology学会で発表された。スタディでは、生児出生数に関する自己申告情報および関連画像データが提供可能な多民族住民ベースコホート、Dallas Heart Studyの女性1,644人（平均年齢45歳）を対象とした。コンピュータ断層画像を用いて計測した冠動脈石灰化（CAC）スコアおよび磁気共鳴画像による大動脈壁厚（AWT）により、心臓や動脈壁に潜在性の動脈硬化所見を有するか否かを判断した。2人または3人の生児出生の女性を基準に用いたところ、4人以上生児出生の女性はCACまたはAWTが異常値であるリスクが約2倍であった。この相関は社会経済的状況、教育、人種および心血管疾患リスクを上昇させることが知られている因子で補正しても、依然として認められた。興味深いことに、出産をしていないかまたは1人しか出産していない女性もまた潜在性動脈硬化所見を示し、U型の相関を認めた。

Full Text

Women who give birth to four or more children are much more likely to have evidence of atherosclerosis compared with those having fewer pregnancies, according to research presented at the American College of Cardiology's 63rd Annual Scientific Session.

While earlier studies have shown an association between several aspects of pregnancy – physiological changes, complications, number of pregnancies – and future heart disease risk, many questions remain about how pregnancy might affect cardiovascular risk. To better understand the potential link, researchers at the University of Texas Southwestern Medical Center set out to determine whether the number of live births is associated with early signs of cardiovascular disease.

"This is not a recommendation for women to only have two or three children," said Monika Sanghavi, M.D., chief cardiology fellow, University of Texas Southwestern Medical Center, and lead investigator of the study. This is the first study to look at two markers of subclinical atherosclerosis.

"Our findings add to the growing body of evidence that the changes associated with pregnancy may provide insight into a woman's future cardiovascular risk and deserves further attention."

The study included 1,644 women from the Dallas Heart Study, a multiethnic population-based cohort, who had both self-reported information about the number of live births and relevant imaging study data available. The average age at the time of analysis was 45 years and slightly more than half of the women (55 percent) were African-American. Coronary artery calcium (CAC) scores were measured using computed tomography imaging and aortic wall thickness (AWT) by magnetic resonance imaging to determine whether or not women had evidence of subclinical atherosclerosis in the heart and artery walls. CAC was positive if it was greater than 10 and AWT was abnormal if it was greater than the 75th percentile for age and gender. These tests were done as part of standard subject participation in the Dallas Heart Study.

Using women who had two or three live births as a reference, women who had given birth to four or more children had an approximately two-fold increased risk of having abnormal CAC or AWT. This association remained even after adjusting for socioeconomic status, education, race and factors known to heighten the risk of cardiovascular disease. Women who had more babies were more likely to be older, Hispanic, have high blood pressure, higher body mass index and lower socioeconomic status.

Curiously, women who had zero or just one live birth were also more likely to show evidence of subclinical atherosclerosis – revealing a U-shaped relationship.

Authors say it is unclear why this might be the case. But Sanghavi and others speculate they may have captured some women in this group who have an underlying condition that prevents them from carrying a first or second pregnancy to term, which may also predispose them to cardiovascular disease or risk factors. For example, women with polycystic ovarian syndrome can have menstrual irregularities and trouble getting pregnant, but they may also have other health changes such as excess body weight, diabetes, high blood pressure or high cholesterol.

Pregnancy itself sparks a cascade of changes that can place more strain on a woman's cardiovascular system. For example, the volume of blood being pumped through the heart increases by 50 percent. In addition, other physiological and metabolic changes occur (e.g., increased insulin resistance and higher cholesterol levels).

"Pregnancy has been called 'nature's stress test,' and for good reason," Sanghavi said. "It may also help identify women who are at increased risk for heart disease, even though right now they may not have any risk factors."

Sanghavi said this study suggests that clinicians need to be more thorough in documenting pregnancy histories to take advantage of this window into a woman's cardiovascular system. This information can be used to better estimate future risk of heart disease and monitor certain patients more closely to try to prevent future heart disease. However, what this might mean in practice has yet to be determined.
"The benefit of pregnancy is that it occurs relatively early in a woman's life and allows for early intervention for those at higher risk," she added.

The authors stressed the need for more research to both confirm this association and explore the biological underpinnings of these findings. The survey instrument that was used did not allow the authors to differentiate those women who had chosen not to become pregnant and those who were unable to become pregnant for other reasons. This would be an important distinction to make when trying to understand the increased risk in women with zero to one live births.

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