A study published Aug. 3, 2016 in the Journal of the American Heart Association found that risk factors for heart disease, stroke and diabetes may increase more rapidly prior to menopause rather than afterward, as previously thought. It was reported Aug. 3, 2016 by Reuters.

What is menopause? What has previous research determined about how it affects women?

Menopause is the time when a woman stops having menstrual cycles and is defined as starting one year after a woman’s last menstrual period. A major result of menopause is a decline in estrogen levels, an increase in “bad” (LDL type) blood cholesterol levels, and an increased likelihood of having a condition called Metabolic Syndrome (MetS).

What is metabolic syndrome? What are its dangers?

Metabolic syndrome is defined by increase in waist circumference, elevated triglyceride levels (fat in blood), low “good” (HDL type) cholesterol levels, elevated fasting blood sugar levels, and elevated blood pressure. The most important danger from metabolic syndrome is the progression to type 2 diabetes, a disease that causes blood sugar levels to rise higher than normal, damaging organs such as the heart and blood vessels.

What was this study seeking to determine? Has this been done before?

The goal was to determine what happens during the menopause transition (known as perimenopause) — as far as how quickly and when some women might get metabolic syndrome — to determine when this important risk factor for heart and vascular disease might develop. A similar study has not been done before, in part because of a historical lack of women included in research studies and the difficulty and expense of looking at population health. Studies have been done showing an increase in visceral obesity (fat in the abdomen) and metabolic syndrome in women who are postmenopause compared with premenopausal women. Other studies have suggested differences in women going through the menopause transition based on their ethnicity or race.

How were the data obtained for this study? How long were the subjects followed?

Data were obtained by questionnaire and four follow-up interviews. The subjects were followed for 10 years.
Who were the subjects?

The subjects were participants in the Atherosclerosis Risk in Communities (ARIC) study, a community-based research study that started in 1987 across four field centers in the United States. Subjects were identified as not having gone through menopause, and a total of 1,470 women (1,216 white and 285 black) were included in the central analysis. Average ages were 49.3 years for white women and 48.7 years for black women. Women were asked questions about their medical history, including whether they had undergone a hysterectomy or had their ovaries removed surgically and whether they had experienced a menstrual cycle within the previous two years. Women with a history of diabetes or coronary heart disease were not included in the study.

How did the researchers define and measure the severity of metabolic syndrome?

Metabolic syndrome severity was calculated for participants at all four visits using established sex- and race-based formulas. The researchers were able to then track the severity of the metabolic syndrome over additional visits to see how it progressed both around the change (perimenopause) and after the change (postmenopause).

How did researchers in the ARIC study determine if subjects had reached menopause? Which subset of subjects were the focus of the new study?

The researchers based this on when a woman had not had a menstrual cycle or period in the two years before the interview. The new study focuses on women who had not yet completed the transition to menopause.

What were the results?

The researchers identified an increase in metabolic syndrome severity during the premenopausal (before the change) and perimenopausal (during the change) time periods compared with the postmenopausal period (after the change).

Did the study reveal any differences concerning any subgroups?

The rate of increase in the metabolic syndrome severity during the premenopausal period was more rapid among black women than among white women. The study’s authors suggest that this finding could point to a biological difference between races and ethnicities during the menopausal transition. They said the reasons for such a difference were not clear but did not appear to result from differences in socioeconomic status, education, or the use of hormone replacement therapy — which was more common among the white subjects.

Did estrogen therapy affect the results?

Estrogen therapy did not affect the results during any of the menopausal stages.

Does this research fall in line with previous studies? Was anything surprising?

It is consistent with previous studies that changes causing an increased heart risk occur when women stop having their periods (go through menopause). The surprising finding was that these changes occur earlier than had been thought and differed between white and black women. Bigger changes in triglycerides (fats in the blood), blood cholesterol, and glucose (blood sugar) happened in the time before menopause compared with afterwards. Black women had larger increases in blood pressure after menopause, whereas white women had more waist size increase, triglyceride increase, HDL decrease and fasting glucose increase after menopause.
Did the researchers offer an explanation for the results? What might slow the progression of metabolic syndrome after menopause among black women?

The researchers discuss their formulas used to score MetS severity. The formulas included sex- and race/ethnicity-based factors. The researchers note that the calculations may result in black women reaching a “maximum” related to the MetS score when pre- or peri-menopausal, which could result in the appearance of a slowing of MetS progression after menopause. However, the researchers also comment that the study results may in fact point to a biological difference between white and black women. The investigators were able to exclude socioeconomic status, education, and hormone replacement therapy as factors causing the difference in results.

What were the strengths of this study’s design and execution?

The study included a large number of women and followed them over 10 years with regular follow-up, collecting detailed information.

Were there any shortcomings in the study design and execution?

The shortcomings include the broader definition of when a woman has transitioned to menopause. Researchers used two years since the last menstrual cycle as opposed to one year to define someone who was postmenopausal. They did not include women who were not in the perimenopausal time period of their lives. Information about specific hormone therapies women were taking was not obtained.

What should people and health care professionals do differently in the face of these findings? What are the challenges to addressing this issue?

Heart disease is the leading killer of women. The study presents new information for women in considering their risk for heart disease. Paying attention to diet and exercise will always play an important role in keeping heart healthy, but it may play an even bigger role in the premenopausal or perimenopausal period. The recommendation for a heart healthy diet and staying active applies throughout a woman’s lifespan. Challenges remain to identify the biologic basis for the differences identified in the study and how to best protect women’s heart health. The authors point to the additional possibility that medication to slow the progression of metabolic syndrome may be proven to lower future disease risk. However, that will need to be studied.