

High LDL-C levels in women prior to childbirth linked with high levels in adult offspring

March 2 2016

In a study published online by *JAMA Cardiology*, among more than 500 adult/offspring pairs, elevated maternal low-density lipoprotein cholesterol (LDL-C) levels prior to pregnancy were associated with elevated adult offspring LDL-C levels, beyond the influence attributable to measured lifestyle and inherited genetic factors.

The effect of maternal lipoprotein abnormalities on offspring's cardiovascular health in the general population has been underexplored, despite the frequent occurrence of dyslipidemia (abnormal lipid levels) among women of childbearing age. In the United States, a quarter of women of childbearing age had an elevated LDL-C level (greater than 130 mg/dL) in 2007- 2008 data. Michael M. Mendelson, M.D., Sc.M., of the Framingham Heart Study, Boston University School of Medicine, Boston, and colleagues analyzed 538 parent-offspring pairs with parental LDL-C levels measured in the Framingham Heart Study prior to the offspring's birth. The Framingham Heart Study is a multigenerational, population-based cohort initiated in 1948. For this analysis, parental prebirth, parental concurrent, and adult offspring assessments occurred in 1971-1983, 1998-2001, and 2002-2005, respectively. Data analyses were conducted between March 2013 and May 2015.

The researchers found that adult offspring LDL-C levels were associated with maternal prepregnancy LDL-C levels after adjustment for family relatedness and offspring lifestyle, anthropometric factors (various body

measurements), and inherited genetic variants. Adults who had been exposed to elevated maternal prepregnancy LDL-C levels were at a 3.8 times higher odds of having elevated LDL-C levels and had an adjusted LDL-C level of 18 mg/dl higher than did those without such exposure.

"The findings support the possibility of a maternal epigenetic [something that affects a cell, organ or individual without directly affecting its DNA, such as an environmental effect] contribution to cardiovascular disease risk in the general population. Further research is warranted to determine whether ongoing public health efforts to identify and reduce dyslipidemia in young adults prior to their childbearing years may have additional potential health benefits for the subsequent generation," the authors write.

More information: *JAMA Cardiology*. Published online March 2, 2016; [DOI: 10.1001/jamacardio.2015.0304](https://doi.org/10.1001/jamacardio.2015.0304)

Provided by The JAMA Network Journals

Citation: High LDL-C levels in women prior to childbirth linked with high levels in adult offspring (2016, March 2) retrieved 7 May 2024 from <https://medicalxpress.com/news/2016-03-high-ldl-c-women-prior-childbirth.html>

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