

Better regulation of the immune system may minimize preeclampsia symptoms

6 March 2019

Boosting the body's levels of interleukin-4 (IL-4)—an immune system protein that controls

inflammation—may help manage the pregnancy complication preeclampsia, according to a new rodent study. The research, published in the *American Journal of Physiology—Regulatory, Integrative and Comparative Physiology*, was chosen as an APSselect article for March.

Preeclampsia is associated with [high blood pressure](#) and a long-term rise in inflammatory cells, antibodies that attack the body's own tissues (autoantibodies) and proteins during pregnancy. Women with preeclampsia may also experience liver, brain, kidney and heart problems, deliver early and have smaller-than-average babies at birth. Recent preeclampsia research suggests that changes in the [immune system](#) play a role in the development of the condition.

Researchers studied pregnant rats with reduced blood flow to the uterus—a complication associated with preeclampsia. The maternal rats with restricted blood flow had higher blood pressure and higher levels of [inflammatory cells](#) and proteins in the bloodstream and placenta compared with a healthy control group of pregnant rats. The animals received IL-4 supplements for five days. IL-4 was found to lower blood pressure, improve [blood flow](#) to the uterus and increase production of regulatory immune cells and proteins. The supplement also reduced the amount of immune fighter cells, autoantibodies proteins to "more closely [resemble] the immune response during a normal pregnancy," the research team wrote.

"These findings advance clinical knowledge by demonstrating the important role of IL-4 signaling among various inflammatory pathways associated with [preeclampsia]," wrote the researchers. "IL-4 [is] an important and novel therapeutic to add to the current management of this disease, which could improve pregnancy outcomes in patients with

More information: Jesse N. Cottrell et al, Interleukin-4 supplementation improves the pathophysiology of hypertension in response to placental ischemia in RUPP rats, *American Journal of Physiology-Regulatory, Integrative and Comparative Physiology* (2019). [DOI: 10.1152/ajpregu.00167.2018](#)

Provided by American Physiological Society

APA citation: Better regulation of the immune system may minimize preeclampsia symptoms (2019, March 6) retrieved 23 August 2022 from <https://medicalxpress.com/news/2019-03-immune-minimize-preeclampsia-symptoms.html>

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