

Exposure to Chemicals during Pregnancy is not Associated with an Increase in Blood Pressure

New study analyses the health impact of exposure to 21 non-persistent chemicals among pregnant women

Barcelona, 18 January, 2019.- **Exposure to certain chemicals** such as phthalates, parabens or Bisphenol A could be associated with a **decrease in blood pressure during pregnancy**. This is one of the main conclusions of a study led by the Barcelona Institute for Global Health ([ISGlobal](#)), an institution supported by "la Caixa", and [published](#) recently in the *International Journal of Hygiene and Environmental Health*.

Hypertensive disorders during pregnancy are one of the main causes of maternal and child mortality and morbidity. Exposure to environmental chemicals is suspected to increase the risk of high blood pressure, but **few studies have addressed the effect of non-persistent chemicals** – those that linger only for a brief period into the body -, **particularly among pregnant women**.

This study, which is part of the [HELIX project](#), followed **152 pregnant women** from Barcelona (Spain), Grenoble (France) and Oslo (Norway). Three urine samples per day were collected during one week in the second trimester and one week in the third trimester, in order to **measure exposure to 21 substances**: ten **phthalate** metabolites, seven **phenols** including **parabens** and **bisphenol A (BPA)**, and four **organophosphate pesticide** metabolites. Blood pressure was measured at the end of each week. The major strength of this study lies in its repeated and prospective design and the use of multiple biospecimens per person.

The results show that "a higher exposure to some phthalates, BPA and parabens were associated with a decrease in blood pressure, both systolic and diastolic, particularly in the second trimester", explains **Charline Warembourg**, ISGlobal researcher and first author of the study. No association was found for pesticide exposure.

"Our findings do not support the hypothesis suggested by previous studies of a hypertensive effect of phthalates, phenols or pesticides during pregnancy", concludes **Maribel Casas**, ISGlobal researcher and study coordinator. "This apparent contradiction with studies in non-pregnant populations may reflect **physiological changes that occur during pregnancy and modify blood pressure**", she adds. Thus, non-persistent chemicals could actually enhance the decrease in blood pressure frequently observed in the first mid of the pregnancy. Another possible explanation is that "the study did not cover the late pregnancy period, which is at risk for onset of hypertensive disorders", said Warembourg.

A potential mechanism that could explain how these chemicals affect blood pressure is [endocrine disruption](#). Once the chemicals enter in our organism through diet, skin or air, they reach the blood and can imitate the action of hormones. For example, BPA has estrogenic properties and estrogens are themselves known to have protective effect on arterial stiffness.

Reference

Warembourg C, Basagaña X, Seminati C, de Bont J, Granum B, Lyon-Caen S, Manzano-Salgado CB, Pin I, Sakhi AK, Siroux V, Slama R, Urquiza J, Vrijheid M, Thomsen C, Casas M. Exposure to phthalate metabolites, phenols and organophosphate pesticide metabolites and blood pressure during pregnancy. *Int J Hyg Environ Health*. 2018 Dec 27. pii: S1438-4639(18)30659-X. doi: [10.1016/j.ijheh.2018.12.011](https://doi.org/10.1016/j.ijheh.2018.12.011).

About ISGlobal

The Barcelona Institute for Global Health, ISGlobal, is the fruit of an innovative alliance between "la Caixa" and academic and government institutions to contribute to the efforts undertaken by the international community to address the challenges in global health. ISGlobal is a consolidated hub of excellence in research that has grown out of work first started in the world of health care by the Hospital Clínic and the Parc de Salut MAR and in the academic sphere by the University of Barcelona and Pompeu Fabra University. The pivotal mechanism of its work model is the transfer of knowledge generated by scientific research to practice, a task undertaken by the institute's Education and Policy and Global Development departments. ISGlobal a member of the CERCA programme of the Generalitat de Catalunya.

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