

ENDOCRINE DISRUPTORS MIXTURES: THE REAL SCENARIO OF HUMAN EXPOSURE

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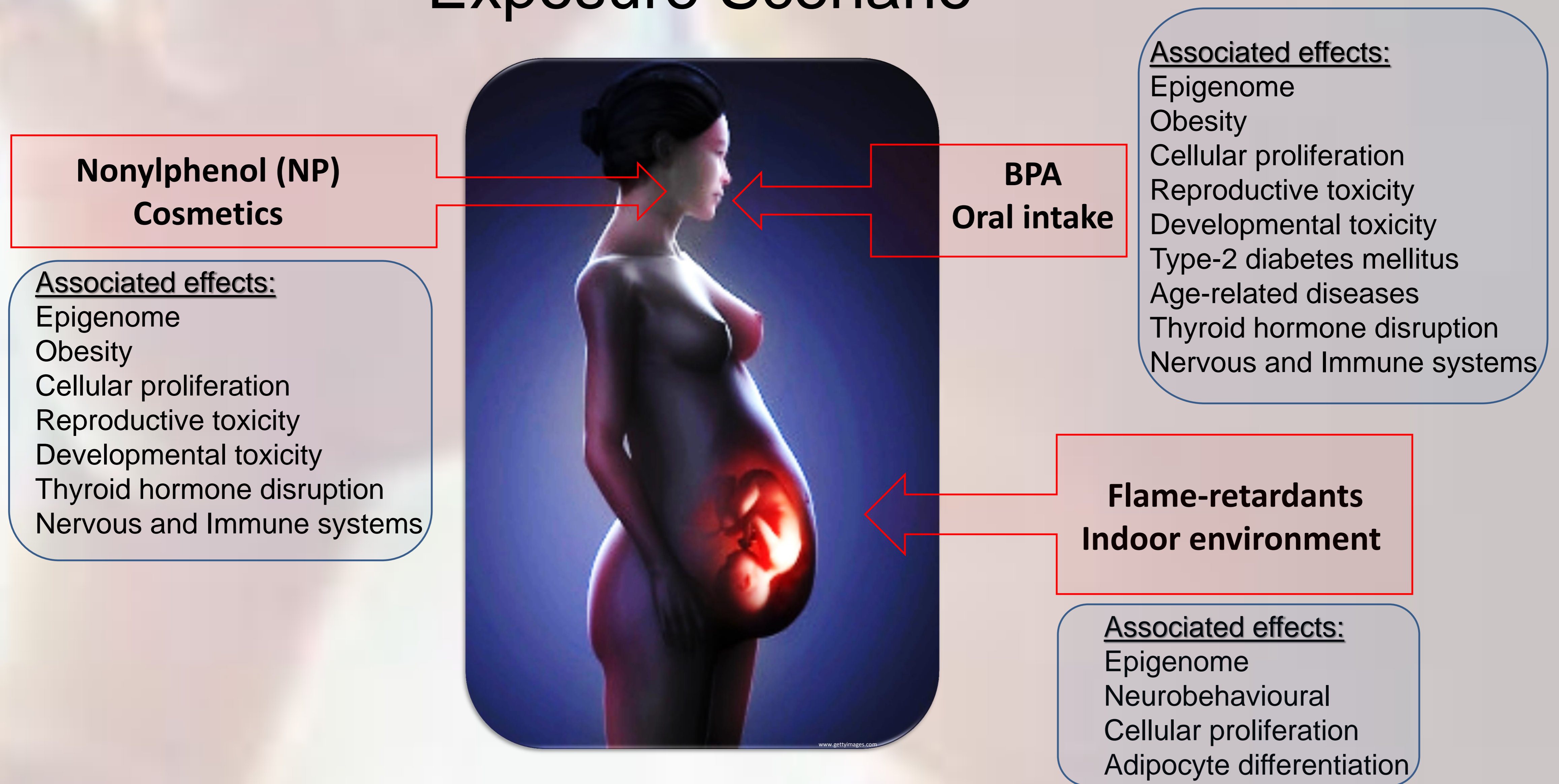
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Endocrine disrupting chemicals (EDCs) are exogenous agents that have the ability to interfere with/or mimic estrogenic hormones and, therefore can simultaneously and differentially trigger specific signaling pathways responsible for the nature and magnitude of biological responses in diverse cell types. Human exposure to EDCs, particularly at low-doses, is ubiquitous, persistent and occurs in complex mixtures. These compounds can bioaccumulate in lipid compartments of tissues forming a mixed “body burden” of contaminants of different origins. Although the independent action of chemicals has been considered the main principle in EDCs mixture toxicity, several effects cannot be predicted when analyzing single compounds individually.

Based in a revision of the literature, focused in studies that evaluated EDCs mixtures, we hypothesize the scenario of a pregnant woman environmentally exposed to three different EDCs as a potential real scenario of human exposure supported by data describing where exposure to these compounds occur.

Exposure Scenario



NP and BPA Mixtures - Additive and Synergistic Interactions



Transplacental transference, during embryonic development, lead to the chronic exposure of fetus to mixtures of EDCs, resulting in:

- Early “body burden” of contaminants
- Altered epigenetic marks in placenta and particular genes.

Parental exposure during pregnancy is correlated with decreased birth weight of offspring and shortened anogenital distance in male offspring.

Although the assessment of potential risks to human health as a result of exposure to mixtures of EDCs is a major topic for consumer safety, information regarding EDCs mixtures effects in the context of real exposure scenarios is still inexistent.